

VOL. 2, No. 6

JUNE

GENERAL SCIENCE

1915

THREE DAY LOAN

THE  
**AGRICULTURAL  
GAZETTE**  
OF CANADA

SHORT COURSES

THE SPRING CONDITION OF ALFALFA

IMPROVEMENT IN EGG PRODUCTION BY BREEDING

CARE OF SCHOOL GARDENS DURING SUMMER  
VACATION



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DEPARTMENT OF AGRICULTURE  
OTTAWA, CANADA

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VOL. 2, No. 6



June, 1915

DOMINION OF CANADA  
DEPARTMENT OF AGRICULTURE

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# The Agricultural Gazette of Canada

EDITOR · J. B. SPENCER, B.S.A.

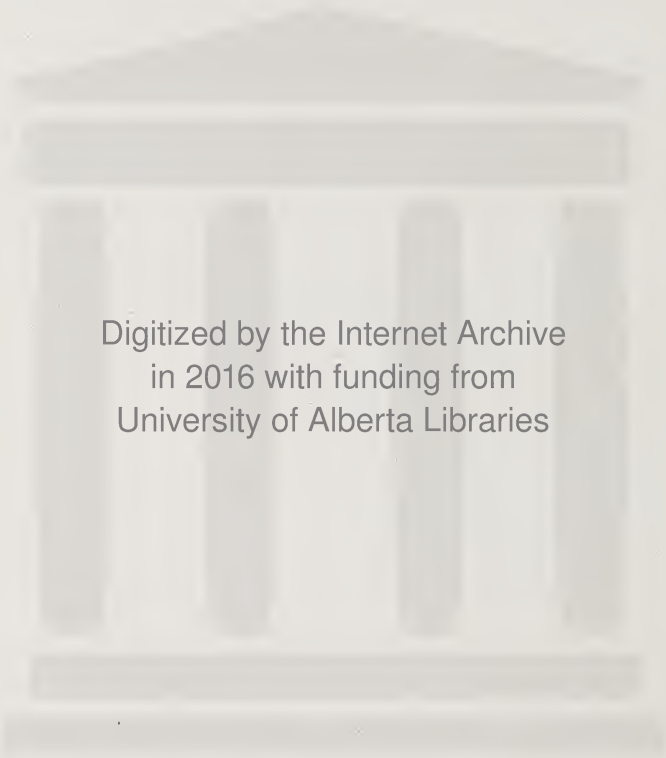
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Issued by direction of  
THE HONOURABLE MARTIN BURRELL  
Minister of Agriculture

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OTTAWA  
GOVERNMENT PRINTING BUREAU

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# The Agricultural Gazette

OF CANADA

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VOL. II

JUNE, 1915

No. 6

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## THE SHORT COURSE

**P**ERHAPS no system of instruction has spread with greater rapidity, nor has more firmly gripped the rural population, than "The Short Course". Commencing with dairying, it was soon applied to other branches of agriculture, and is now extended to the study and demonstration of many other industries.

It was in 1881 that the first short course in agriculture was held in Canada. At a cheese factory, established at St. Denis, Kamouraska county, Quebec, there were commenced that year classes for instruction in the art of cheesemaking. A year later similar classes for instruction in creamery buttermaking were inaugurated at the creamery at Ste. Marie, Beauce county, in the same province.

Commencing in the early nineties the Ontario Agricultural College began a system of short courses. In 1893 the Dairy School was opened for courses of two months and less and that year the first summer school for teachers was organized. Since then the work has spread over the different provinces where it has become the means of reaching thousands of men and women, boys and girls, within easy reach of their own homes, besides large classes of instructors and others who have taken advantage of the courses provided at the agricultural colleges and schools. Much of this work is carried on under the provisions of THE AGRICULTURAL INSTRUCTION ACT.

From the beginning the colleges and schools have held their short courses, but during the past year more students were reached at outside points and this is where the greatest need has been met. Many a young man and woman have thus been inspired with the charm of their own calling, who hitherto saw little but drudgery in it.

There have been brought together in this issue reports from every province except British Columbia, of the short courses held during the year ending with March last. These have covered not only agricultural education but those relating to technical, domestic and mechanic science. This series contains much for educationists of every class.

# PART I

## Dominion Department of Agriculture

INFORMATION SUPPLIED BY OFFICIALS OF THE VARIOUS  
BRANCHES REPRESENTED

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### THE DOMINION EXPERIMENTAL FARMS

#### DIVISION OF ILLUSTRATION STATIONS

##### ILLUSTRATION STATIONS IN ALBERTA AND SASKATCHEWAN

BY JOHN FIXTER, SUPERVISOR

THE Experimental Farms Branch of the Dominion Department of Agriculture, under direction of Mr. J. H. Grisdale, Director, has undertaken a limited amount of illustration work in crop production and cultural methods with farmers in Saskatchewan and Alberta.

This work is being incepted along the following lines:—

The Experimental Farms Branch, through its officer, Mr. John Fixter, supervisor of illustration stations, gets into touch with a young farmer, with intelligence and public spirit, owning and operating a farm located near some railroad station or small centre of population. The farmer co-operating puts under the direction of the Department a part of this farm, about 45 acres, the area having a frontage of not less than 48 rods, on a well-travelled highway, so that the work carried on may be unavoidably in evidence to the casual traveller and easily inspected by the interested visitor.

Each piece of land is divided into 8 five-acre fields each having the same frontage on the highway. These

fields are separated by roads one rod wide running from end to end, leaving five acres clear in each field for crop production.

The Department, for the first year, furnishes pure seed necessary to sow such of the five-acre fields as it is decided to put under crop that year. In subsequent years, the farmer is to save enough of the best of the crop grown on these fields to do the necessary seeding.

All cultural and harvesting operations in connection with these fields, that is to say the ploughing, cultivating, discing, harrowing, etc., and the threshing of the grain therefrom, are to be done by the farmer. All work indicated above has to be done in exactly such ways, and at such times, as directed by the illustration division of the Experimental Farms Branch.

The farmer is to keep a record of the amount of time taken to perform the different operations, and to thresh the grain harvested from each of these fields separately, so that it would be known how much was harvested from each, and the total cost of producing the crops.

## RECORD OF WORK

## DOMINION ILLUSTRATION STATION

LOCATED AT

RECORDS FOR WEEK ENDING

FIELD A.

INDICATE KIND OF WORK.

		Ploughing	Harrowing	Sowing															
MONTH	DATE	HOURS OF WORK																	
May	1st																		

FIELD NOTES:

The records just mentioned of the work and crops resulting, together with brief notes made each week on a certain and fixed day, are duly entered.

Also each week, on Saturday, the farmer is to mail to the Experimental Farm, particulars as to general

weather conditions and crop progress on the different fields.

The following chart shows the form to be filled in when reporting weather conditions, forms covering each day of the week are supplied to each operator. By means of these reports it is hoped to have an accurate record of weather conditions.

## WEATHER RECORD

FROM

## DOMINION ILLUSTRATION STATION

PROVINCE

SEC.

TP.

R.

W. OF

POST OFFICE

OPERATOR

Weather Report for Week ending

19

SUNDAY	TEMPS. MAX.	MIN.	KIND OF DAY	
	RAINFALL	INCHES.	HOW LONG PRECIPITATION LASTED	HRS.
	GENERAL NOTES			

The cropping plan, now being carried out, is as per diagram.

It will be noticed Field "A" is to be sown to wheat continuously. The object of this illustration is to show the farmer that such a cropping system is not only far from profitable, but usually not practicable under average weather conditions as com-

pared with the other cropping systems or rotations exemplified.

Fields "B" and "C" are to be sown to wheat and summer-fallow alternately. This plan appears to have given good results in most parts of the prairie provinces.

Fields "D," "E" and "F" form a three year rotation, summer-fallow,



wheat, oats. With this rotation it has been the practice of many farmers to sow oats on the wheat-stubble by simply discing before sowing in spring time. This method, in some instances, has given fair results. It is intended, however, to cultivate a portion of the wheat-stubble after harvest and plough early in the autumn as a comparison.

Field "G".—Three acres of Field "G" are to be used for experimental work with alfalfa and two acres with western rye grass. The shortage of fodder necessitates the growing of some kind of crops that will ensure nutritious food for both the summer and winter feeding of live stock.

Field "H" is to be divided into two equal parts of  $2\frac{1}{2}$  acres each. Corn and wheat are to be grown alternately. The object of this illustration

is to find out if by growing corn and cultivating the land thoroughly while the corn is growing, then ploughing the land as soon as the corn is harvested, will give as good results as the ordinary summer-fallow.

The lines of work that are to be made special features of the illustration stations are:—

The production of pure seed grain suitable to the different localities, and so have considerable quantities available for seed at reasonable prices.

The demonstrating to the farmer that a certain rotation of crops is suitable to the district in which the farm is located.

To illustrate on a farmer's farm, by a farmer, the best methods of soil cultivation, moisture conservation, and fertility upbuilding.

#### CROPPING SYSTEM ON ILLUSTRATION AREA

##### LOCATED AT

Field.	YEAR.		
	1915.	1916.	1917.
A.....	Wheat continuously. 2-yr. rotation, Wheat. Fallow.	Fallow. Wheat	
B.....			
C.....	3-yr. rotation, Fallow. Wheat. Oats.	Wheat. Oats. Fallow.	Oats. Fallow Wheat.
D.....			
E.....	Alfalfa 2 acres in rows 36 inches apart. " 1 " broadcast. Western rye grass.		
F.....			
G.....	Corn $2\frac{1}{2}$ acres in rows 36 inches apart. Wheat $2\frac{1}{2}$ acres.		
H.....			

#### LIST OF DEMONSTRATION STATIONS

The location of the illustration farms selected in Alberta and Saskatchewan with the names of their owners here follow:

NAMES	ADDRESSES	NAMES	ADDRESSES
Neil McLean.....	Shunavon, Sask.	Percy J. H. Warren.....	Assiniboia, Sask.
Chas. W. Appelgren.....	Pambrun, Sask.	E. J. Hunt.....	Medicine Hat, Alta.
R. H. Babe.....	Whitla, Alta.	Milton Holmes.....	Herbert, Sask.
G. L. Hammond.....	Maple Creek, Sask.	Wm. Huxtable.....	Prelate, Sask.
E. H. Thomas.....	Gull Lake, Sask.	F. N. Perry & D. C. Perry.....	Grassy Lake, Alta.
F. W. Abraham.....	Cabri, Sask.	T. H. Frankish.....	Foremost, Alta.
R. & N. Grier.....	Macleod, Alta.	W. M. Kinder.....	Milk River, Alta.
Jos. A. Nielson.....	Carmangay, Alta.	Ottawa Farm Develop- ing Co., Limited, T.	
Matti Mikelson.....	Manyberries, Alta.	J. How, Manager...	Beadle, Sask.
Martin Mortensen.....	Bow Island, Alta.	Jerry Fisher.....	Jenner, Alta.
Frank Barry.....	Empress, Alta.		
J. A. Meldrum.....	Magrath, Alta.		
Sandgren & Carlson.....	Pincher Creek, Alta.		

## THE DIVISION OF ANIMAL HUSBANDRY

## SUMMARY OF FEEDING EXPERIMENTS

BY E. S. ARCHIBALD, B.A., B.S.A., DOMINION ANIMAL HUSBANDMAN

A large number of feeding experiments were conducted during the fiscal year, ending March 31st, 1915. A few experiments which were completed are herewith summarized.

## LAMB FEEDING EXPERIMENTS

In the early fall of 1914, 100 lambs were purchased for feeding experimental purposes. To these was added the lamb crop of the Experimental Farm, giving a total number of 140 lambs to be used on this work.

Owing to the enormous quantities of elevator screenings annually collected at terminal elevators, the problem of the most economic disposal of these is becoming a serious one. An experiment was here made to show the value of the complete screenings and products of the same in the finishing of light lambs for the midwinter and early spring markets. This experiment was divided into two periods,—period 1, on the elevator screenings and products compared with a good grain mixture, and, period 2, where all lots received a good grain mixture for finishing for the market.

The experimental period gave the following results:—

Lot 1 received the standard grain mixture, composed of oats, 2 parts; bran, 2 parts; oil cake, 1 part. This lot made very satisfactory gains and good profits, namely, 54 cents per lamb.

Lot 2 received grain composed of one-half the standard grain mixture and one-half complete, finely pulverized elevator screenings. This lot made 7 per cent greater gains than lot 1, although it consumed less of the grain. The valuation of \$10 per ton on the elevator screenings as compared with \$26 per ton for the

standard grain mixture, showed a profit per head in this lot of \$1.16. The elevator screenings replacing half the standard grain mixture acquired a value of \$39 per ton.

Lot 3 received a grain mixture of pulverized complete elevator screenings alone. They made very much smaller gains than lot 1, but, due to the low cost of screenings, made 50 per cent more profit, namely, 80 cents per head. Compared with lot 1, the elevator screenings here have a value of about \$26 per ton.

Lot 4 received a grain mixture of pulverized complete elevator screenings with the blackseeds screened out before grinding. This meal was given a valuation of \$12 per ton. This lot made the same gains as lot 1, but, due to the low cost of feed, made the greatest profit—\$1.20 per head. Compared with lot 1, the elevator screenings less blackseeds acquired a value of a little over \$36 per ton. Compared with lot 3, it is a splendid evidence that it pays to screen out the blackseeds before feeding.

Lot 5 received blackseeds alone. As shown in a comparison of lots 3 and 4, the blackseeds alone for lot 5 produced very little gains, any gains made being due to the roughage given. However, as this product is worth but little, the gains did not cost more than would leave a reasonable profit.

Lot 6 received a mixture of Caldwell's Molasses Meal and blackseeds. The bitter, distasteful qualities of the blackseeds were thus overcome and the lambs consumed this product greedily. It is peculiar to note that the greater the quantities of blackseeds the lambs were thus induced to eat, the lower and more expensive the gains. Generally speaking, this part of the elevator screenings is dis-



tasteful and worthless as a sheep feed.

In the four-weeks' finishing period all lambs received the same standard grain mixture as lot 1 received in the experimental period. All lots made very profitable gains. As might be expected, lots which were on blackseeds or any ration containing blackseeds responded most readily to this change of foodstuffs and made the greatest and cheapest gains in the finishing period.

Although lots 1 and 4 were rather too heavy and overdone for the market, yet the other lots finished off in prime condition. These lambs, originally purchased for from 7 to 7 $\frac{1}{4}$  cents per pound live weight, topped the Toronto market in the month of March at over 9 cents per pound live weight, thus giving valuable experimental evidence regarding the elevator screenings and at the same time making a good profit.

#### COW FEEDING EXPERIMENT NO. 1

A barn set aside for cow feeding experiments was utilized to carry on a series of tests to show the value of elevator screenings and by-products for the manufacture of milk and butterfat. The standard meal mixture fed during the winter in this barn consisted of bran, 4 parts; gluten feed (23 per cent), 2 parts; corn meal, 2 parts; oil cake, 1 part; cottonseed meal, 1 part. This mixture cost \$26 per ton. From 15 to 20 cows were used in experiments 1, 2, 3 and 4. The importance of such experiments is readily understood. Western farmers particularly should keep all the elevator screenings at home and utilize the same for the manufacture of milk or meats.

Experiment No. 1 consisted in a comparison of the above standard meal mixture versus a ration composed of standard meal, 2 parts; pulverized complete elevator screenings, 1 part. As much milk was produced by the use of the elevator screenings and at somewhat lower

cost per hundred pounds. In this experiment the elevator screenings acquired a value of \$34 per ton.

#### COW FEEDING EXPERIMENT NO. 2

This experiment was a comparison of the standard meal mixture (see experiment 1) versus a ration composed of standard meal, 2 parts; finely pulverized blackseeds, 1 part. A much lower production of milk followed the adoption of this latter ration. However, the blackseeds being only valued at \$4 per ton showed a somewhat lower cost of production. This, however, is indefinite, for the shortening of one-third of the standard meal mixture might have shown as good or better results than where the blackseeds were added. The blackseeds were very unpalatable and were refused in part by some of the cows throughout the whole period. No ill-effects followed their use but no good results were shown.

#### COW FEEDING EXPERIMENT NO. 3

This was a comparison of the standard meal mixture (see experiment 1) versus a ration composed of standard meal, 2 parts; complete pulverized elevator screenings, 2 parts; Caldwell's Molasses Meal, 2 parts. There was a marked decrease in the production of milk by the adoption of the latter ration, as might be expected, due to the lower protein content. However, it cost 5 cents less per hundred pounds to produce milk, due to the low valuation of the elevator screenings. In this lot it was shown that a mixture of equal parts of Caldwell's Molasses Meal and pulverized complete elevator screenings may have a valuation of \$25 per ton as compared with the standard meal mixture.

#### COW FEEDING EXPERIMENT NO. 4

This was a comparison of the standard meal mixture versus a ration composed of standard meal, 4 parts; Caldwell's Molasses Meal, 1 part.

The latter ration showed slightly less milk produced and with an increase in cost of 7 cents per hundred pounds of milk. The Caldwell's Molasses Meal here has a valuation of \$22.50 per ton, although its market value is \$34 per ton.

#### COW FEEDING EXPERIMENT NO. 5

##### Ensilage versus Molasses

The idea of this experiment was to show the value of molasses when a farmer has a shortage of succulent roughage. The molasses was, in a diluted condition, poured on the hay. Thirty pounds of ensilage per cow per day was replaced by 15 pounds of ensilage and 4 pounds of best quality feeding molasses, which cost \$23 per ton. About the same quantity of milk was produced on each ration, the latter ration showing slightly greater cost. With ensilage valued at \$2 per ton and the hay and grains valued as seen in the report of "Dairy Records" elsewhere in this issue, molasses thus acquires a valuation of \$11.90 per ton.

#### COW FEEDING EXPERIMENT NO. 6

##### Turnips versus Molasses

The purpose of this experiment was similar to experiment No. 5. Thirty pounds of roots was replaced by 4 pounds of molasses, the molasses being fed diluted, sprinkled on the hay. In this case all the succulent roughage, namely roots, was replaced by the molasses, with the result that there was slightly less milk produced and at an increased cost of 8 cents per hundred pounds of milk. When compared with the valuations placed on other foodstuffs, molasses here is worth only \$10.20 per ton.

#### SWINE FEEDING EXPERIMENT NO. 1

##### Summer feeding of Shoats in outside paddocks

Lot 1 received a grain mixture composed of shorts, ground oats, ground corn, equal parts, with skim-

Lot 2 received the same grain mixture as lot 1 with skim-milk and with an addition of 5 pounds of green feed (fresh cut rape).

Lot 3 received a grain mixture the same as lot 1 with the exception that the corn was not included directly in the mixture but was fed in a Hopper grinder, the pigs grinding this for themselves. The skim-milk was given in the same quantities as in lots 1 and 2.

Deductions.—Lot 1 made the greatest and cheapest gains, which cost only 5.5 cents per pound. Lot 2 made the most expensive gains, which cost 6.2 cents per pound. Lot 3 made satisfactory gains, which cost 5.9 cents per pound. Fed in the above way to shoats 4 and 5 months of age on a 70-day feeding experiment in the paddocks, rape here had no valuation whatever. The Hopper grinder gave better results than in previous trials, but was not of much value, as the pigs were compelled to consume more grain in order to overcome the labour of grinding.

#### SWINE FEEDING EXPERIMENT NO. 2

##### Grains and Milk Substitutes for Weaning Pigs

This, too, was a summer feeding experiment in the outside paddocks. The average age of the pigs at the start of each experiment before weaning was less than 28 days. The experiment continued for 84 days.

Lot 1 received skim-milk plus a meal composed of corn, 3 parts; shorts, 3 parts; oil cake meal, 1 part. This lot produced the cheapest gains, at a cost of 3.06 cents per pound.

Lot 2 received skim-milk plus a meal composed of corn, 3 parts; shorts, 3 parts; Swift's Digester Tankage, 1 part. In other words, the ration for lot 2 was the same as for lot 1 with the exception of tankage replacing oil meal. Due to the much greater cost of tankage, this lot made gains which cost 4.3

cents per pound. Fed in the above rations, oil meal and tankage are worth the same pound for pound for young pigs.

Lot 3 received skim-milk plus a meal ration composed of corn, 6 parts; tankage, 1 part. This lot made the greatest gains of any, but stood third as to cheapness of gains, showing a cost of 3.5 cents per pound. When compared with lot 1, where the shorts are replaced by the corn, corn in this experiment showed a valuation of \$44.80 per ton.

Lot 4 received no skim-milk. A meal ration was fed, similar to the meal ration of lot 3, namely, corn, 6 parts; and tankage, 1 part. This lot made the lowest and most expensive gains, which cost 4.23 cents per pound. The smallest profits were made from lot 4. When compared with lot 3, it is seen that skim-milk had a valuation of \$7.30 per ton, or over 36 cents per hundred pounds.

Lot 5 received skim-milk and the meal consisting of finely ground corn alone. This lot made the second poorest gains, but the gains were made cheaply, costing only 3.1 cents per pound. Compared with lot 3, where tankage was added, the tankage has a valuation of \$11.80 per ton. Compared with lot 4, skim-milk has a high valuation while tankage has only a value of a little over \$3 per ton.

*Deductions.*—Generally speaking, lots 1, 2 and 3 were most satisfactory and developed by far the best feeding pigs. Tankage is only a fair substitute for skim-milk, but may be used in case of necessity to fair advantage. A well-balanced grain mixture with skim-milk produces hogs with much more scale and which will finish off pork worth at least 1 cent more per pound live weight, due to better development of the frame for carrying a prime finish.

#### SWINE FEEDING EXPERIMENT NO. 3

##### The Value of Elevator Screenings and By-products for Finishing Hogs

This experiment was conducted during the winter months to show the value of elevator screenings, and some of the constituents of elevator screenings as compared with a good standard meal mixture.

Lots 1 to 5, inclusive, received the same quantity of skim-milk and roots. Lot 6, however, received neither skim-milk nor roots, the grain being fed as a water slop in both periods of the experiment.

This experiment was divided into two periods, namely, an experimental period and a finishing period. In the finishing period all lots received the same standard meal mixture which lot 1 received in the experimental period. In the experimental period lot 1 received a standard meal mixture composed of shorts, 3 parts; finely ground corn, 3 parts; linseed oil meal, 1 part.

Lot 1 made the greatest gains, but came fourth for cheapness, the gains costing 4.7 cents per pound.

Lot 2 received a mixture composed of standard meal mixture (as lot 1), 1 part; finely pulverized blackseeds, 1 part. This lot stood third for the largest gains and second for cheapness of gains, costing 3.8 cents per pound. It would appear in this lot as though the blackseeds had some value as a foodstuff. This, however, is not borne up in succeeding lots.

Lot 3 received a meal composed of finely ground blackseeds alone. The blackseeds here appear to have a value of \$4.98 per ton less than nothing when compared with the returns from lot 1. This lot stood fifth as to total gains and the gains cost 7.6 cents per pound.

Lot 4 was fed a meal composed of finely ground buckwheat screenings, which were taken from the complete elevator screenings. Com-



pared with a value of \$26 per ton for the standard meal of lot 1, buck-wheat screenings here have a value of \$27.60 per ton. This lot stood second for the greatest gains and made the cheapest gains, which cost only 2.7 cents per pound.

Lot 5 received a meal mixture composed of finely pulverized complete elevator screenings, 3 parts; and Ogilvie's "Noxol" feed flour, 1 part. This lot stood fourth for the largest gains and third for cheapness of gains, which cost 4 cents per pound. This mixture of screenings and flour here has a value of \$18.40 per ton.

Lot 6 received finely ground blackseeds and water alone. No gains were made, but the blackseeds, although very unpalatable, had sufficient value to maintain the original weight of the animals.

*Finishing Period:*—As stated above, all lots received the standard grain mixture in the finishing period and were all fed alike in every way except that lot 6 received no milk or roots. The cost per pound gain of the various lots in the finishing period is as follows:—

Lot 1.....	7.3 cents.
Lot 2.....	5.7 "
Lot 3.....	4.7 "
Lot 4.....	5.6 "
Lot 5.....	4.7 "
Lot 6.....	4.6 "

It is thus seen that lots which had received blackseeds in the experimental period and which had made too expensive gains at the age when gains should be made most cheaply, responded very readily to the good meal mixture of the finishing period and made the greatest and most economical gains. It is to be noted, however, that pigs which received blackseeds in the experimental period were more or less stunted and did not have the scale to finish off prime carcasses, as did lots which received the better grain ration during the experimental period.

All lots were fed in duplicate, careful records being kept not only as to the weights of the individuals, but also as to the feeds consumed. Chemical analyses of the feeds used for swine feeding and all other experiments are being made for complete compilations.

## DAIRY RECORDS

BY E. S. ARCHIBALD, B.A., B.S.A., DOMINION ANIMAL HUSBANDMAN

**I**N the following table are given the two best records in each breed, for cows which have finished their lactation periods during the fiscal year ending March 31, 1915. It is to be noted that many of the best cows in each of the herds have not finished their lactation periods previous to March 31, hence are not included. Only two Holstein heifers finished their lactation periods, and it is scarcely fair to compare them with mature cows of other breeds. A number of the best Holsteins are completing splendid records during the months of May and June.

The following valuations were placed on foodstuffs:—

Pasture, per month.....	\$ 1.00 per cow.
Meal mixture.....	25.00 per ton.
Hay.....	7.00 "
Straw.....	4.00 "
Roots and ensilage.....	2.00 "
Green feed.....	3.00 "

In calculating the value of products, 30 cents per pound was allowed for butter, and 20 cents per hundred pounds for skim-milk and buttermilk. Although a great deal of the milk was sold to very much better advantage, yet this is a fair basis of calculation.

## RECORDS OF THE TWO BEST COWS IN EACH BREED

NAME OF COW		Age at Beginning of Lactation Period.	Date of Dropping Calf	Number of Days in Lactation Period	Total Pounds of Milk for Period	Daily Average Yield of Milk	Average Per Cent Fat in Milk	Pounds of Butter Produced in Period	Value of Skim-milk at 20 Cents per Hundred Pounds	Total Value of Product.	Amount of Meal Eaten at 1 1/4 Cents per pound	Amount of Roots and Ensilage Eaten at \$2 per Ton	Amount of Hay Eaten at \$7 per Ton	Amount of Green Feed Eaten at \$3 per Ton	Amount of Straw Eaten at 20 Cents per Hundred Pounds	Months on Pasture at \$1 per Month	Total Cost of Feed Between Calvings	Cost to Produce 100 Pounds of Milk	Cost to Produce 1 Pound of Butter (Skim-milk neglected)	Profit on 1 Pound of Butter (Skim-milk neglected)	Profit on Cow Between Calvings (Labour and Calf Neglected)
<b>AYRSHIRE</b>																					
Denty 3rd of Ottawa.	8	Aug. 29, 1913	406		Lb.	Lb.	P. C.	Lb.	\$	\$	Lb.	Lb.	Lb.	Lb.	Lb.	2	88.26	91.23	12.0	76.73	
Ottawa Kate 2nd.	4	Sept. 22, 1913	372		9,106	24.4	4.30	461.49	138.44	17.42	155.86	4,419	8,193	2,888	4,000	178	180.87	88.3	17.5	12.3	74.99
<b>CANADIAN</b>																					
Inoquette	10	May 9, 1913	417		7,928	19.0	5.28	492.54	147.76	15.01	162.77	3,304	7,060	2,673	2,450	183	63.74	80.312	9	17.1	99.03
Aromaz.	5	Mar. 14, 1913	403		7,925	19.6	5.31	495.27	148.58	15.00	163.58	3,696	12,105	2,634	2,450	557	73.29	92.414	7	15.3	90.29
<b>GRADE AYRSHIRE</b>																					
Jennie Dean.	7	Dec. 13, 1913	352		10,796	30.6	4.24	538.76	161.62	20.67	182.29	4,897	13,460	2,352	3,700	352	89.15	82.516	5	13.5	93.14
Annie Laurie.	7	Dec. 2, 1913	322		10,034	31.1	4.06	479.86	143.95	19.25	163.20	3,966	12,695	2,088	3,700	352	75.81	75.515	8	14.2	87.30
<b>GRADE HOLSTEIN</b>																					
Jennie of Parkdale.	6	May 22, 1913	525		15,157	28.8	3.84	685.35	205.60	29.14	234.74	4,900	19,085	2,634	6,740	505	100.66	66.414	6	15.4	134.08
Mountain Queen.	5	Feb. 23, 1914	342		10,735	31.3	3.82	484.18	145.25	20.68	165.93	4,118	6,940	1,974	3,700	246	71.33	66.414	7	15.3	94.58
<b>GUERNSEY</b>																					
Ottawa Iuchen.	8	Nov. 16, 1913	341		8,544	23.6	5.43	546.28	163.88	16.15	180.03	4,064	8,545	2,892	5,170	298	78.80	92.214	4	15.6	101.23
Ottawa Deanie.	4	Nov. 25, 1913	345		7,352	21.3	5.85	506.70	152.01	13.84	165.85	3,404	7,585	2,853	3,700	178	67.01	91.113	2	16.8	98.84
<b>JERSEY</b>																					
Brampton Oakland's Trial	3	Nov. 10, 1913	417		9,674	23.1	6.72	765.35	229.60	18.04	247.64	4,209	8,360	3,039	3,700	302	78.75	81.410	2	19.8	168.89
Brampton Blue Duchess.	4	Nov. 20, 1913	376		9,726	25.8	5.41	619.42	185.82	18.39	204.21	4,186	7,585	2,853	3,700	178	76.78	78.912	3	17.7	127.43

## THE DIVISION OF APICULTURE

## A METHOD OF RECORDING COLOUR VARIATIONS AND INVESTIGATING INHERITANCE IN HONEY BEES

BY F. W. L. SLADEN, DOMINION APIARIST

THE abdomen of the worker honey-bee is protected on the upper or dorsal side by six hard plates or segments telescoping into one another. Normally the apical margin of each segment covers more or less of the base of the segment that follows it. If, however, the abdomen is sufficiently stretched all the segments are fully exposed.

In certain races of bees, for instance, those inhabiting Western Europe and the typical Carniolan bee, the segments are entirely black. In other races, for instance, those found in Italy, the basal portion of the first three segments is orange. In certain races found in Southern Asia and Northeast Africa, and in the artificial American breed known as the "Golden" bee, the orange colour covers the whole of the first three segments, and part of the fourth segment and also a crescent-shaped portion of the thorax known as the "scutellum". In extreme goldens a stage further is reached; the first four segments are entirely orange and the fifth is more or less so. Between these four stages every degree occurs.

To denote the different degrees of colouring the terms "black", "leather-coloured Italian", "three-banded Italians", "four-banded", "five-banded" and "golden" have been used, but these terms are employed somewhat loosely and the writer is not aware that they have ever been scientifically defined. In 1901 (*British Bee Journal*, December, 1909, "Breeding the British Golden Bee in Ripple Court Apiary") he used the term "black" for bees that had the segments entirely or almost entirely black, "intermediate" for those in which the basal portion of the first, second and third segments were orange, and "golden" for those

in which these segments were entirely orange, dividing the intermediates into dark intermediates and light intermediates, and the goldens into dark goldens and goldens.

But for the bee-breeding, work upon which is now under way at the Central Experimental Farm, Ottawa, these distinctions are inadequate, and the proposal is now made to divide the degrees of colour into eleven stages, the expressions one-tenth (or .1) yellow, two-tenths (.2) yellow, and so on up to nine-tenths (.9) yellow, being used to denote the different stages between full black and full yellow. Each of these stages may be sub-divided into any number of "types" up to 10. Thus we may have a total of 101 types, ranging from entirely black to the most extensively yellow. There is a certain amount of irregularity in the spread of the yellow, suggesting, as was remarked in 1912 (*Canadian Bee Journal*, Volume XX, page 362), the presence of more than one Mendelian factor.

Definitions of the eleven stages that the writer has so far found to be most satisfactory are:—

Full Black.—Abdomen entirely black.

- .1 Yellow.—Segment 2 black with two widely separated yellow spots at the base. (These spots are usually connected by a narrow yellow line at the base).
- .2 Yellow.—Basal half or thereabouts of segment 2 yellow, but markedly clouded in the middle; apical half black.
- .3 Yellow.—Basal half or thereabouts of segment 2 almost or quite clear yellow, apical half black. Segment 3 with a black band or large dark spot anterior to felt band.

- .4 Yellow.—Segment 1 with narrow black margin. Portion of segment 3 anterior to felt band only slightly clouded in middle or almost or quite clear.
- .5 Yellow.—Segment 1 with very narrow brown-black margin interrupted or almost so in the middle. Dark margin of segment 2 narrower than in previous stage.
- .6 Yellow.—Segment 1 almost or quite clear yellow to the margin Segment 2 very narrowly edged with brownish-black.
- .7 Yellow.—Segment 2 almost or quite clear yellow to the margin. Segment 3 narrowly edged with brown-black.
- .8 Yellow.—Segments 2 and 3 clear yellow to the margin. Segment 4 with black band wider than yellow band.
- .9 Yellow.—Segments 2 and 3 clear yellow to the margin. Segment 4 yellow in middle.
- Full Yellow.—Segments 2, 3 and 4 with no black.

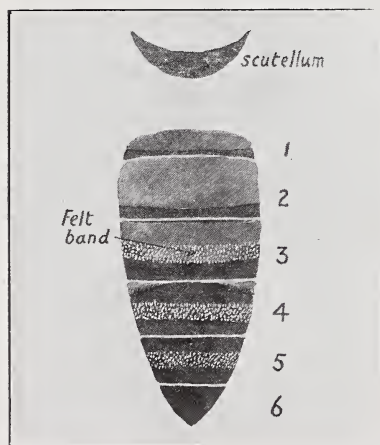


DIAGRAM OF DISTRIBUTION OF COLOUR IN WORKER HONEY-BEE .45 YELLOW

It will probably take a year or two of study to define the different "types". However, a "type" to which I have given the designation .45 yellow, illustrated herewith, will serve as an example. In this the yellow on segment 3 extends under the felt band except at the sides.

Provided thus with a designation for practically every variation in tegumental colouration, we can proceed to record the colour differences of colonies.

It must be noted here that the honey-bee is unique among live-stock in its method of reproduction. The queen or female bee when only a few days old is mated by the drone or male, who dies immediately. For the rest of her life, lasting three or four years, the female eggs she lays, which have been computed by F. R. Cheshire for a prolific queen to number 1,500,000 and develop into workers or, if specially treated, into queens, are the result of this one union; but all the males she produces, it is believed, are parthenogenetic, that is, they are exclusively the progeny of the queen. The point in these remarkable facts that chiefly concerns us here, is, that an impregnated queen honey-bee, like a hermaphrodite animal, carries in herself the female and male reproductive elements of one pair of individuals, and she continues to produce an enormous number of individuals "true" to this pair without any possibility of taint from other individuals until her death three or four years later.

Thus the progeny of a queen-bee is not, like a sow's litter or a hen's clutch, an occasional small brood whose nature is determined by the last male that served the mother, but it is a steady stream, so to speak, of a certain type that does not change and can be studied at any time, year after year. Even while this stream is going on we may study the second and third generations bred from it.

It will thus be seen how very important an analysis of the colour of the workers produced in the different colonies is in bee breeding work.

To make the analysis, one hundred workers are taken (preferably recently hatched ones from a cage that



has been placed a few days previously over hatching brood in order to insure the non-inclusion of bees of other parentages), and are separated into "stages".

The space between two parallel

colour index taken on April 1, 1915, of a colony produced by an impregnated queen imported from Novara, Italy, in June, 1913, and at "B" and "C" of two colonies produced by two daughters of this

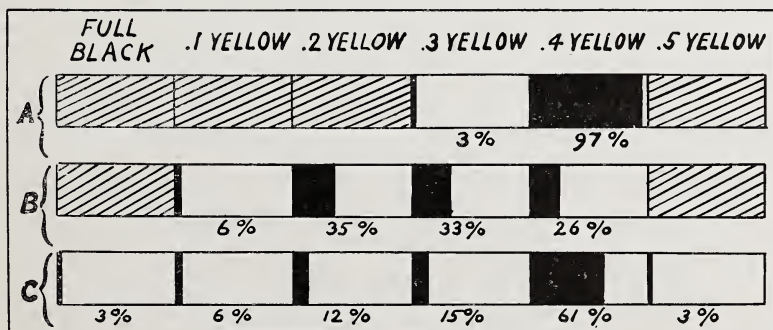


DOMINION BEE-MATING STATION ON THE KAZUBAZUA PLAINS, QUE.

lines drawn on a sheet of paper is divided into as many equal parts as there are "stages", and a portion of the left end of each part proportionate to the percentage of workers belonging to the "stage" to which that part is devoted is blackened. This diagram is called the "colour index" of the colony. The accompanying engraving gives at "A" the

queen that were mated at the Dominion Bee-Mating Station at Kazubazua, Que., forty miles north of Ottawa, with local black drones in July, 1913. These analyses had to be made with adult workers, because the two cross-mated queens were killed in October, 1914, to make room for other queens.

It will be seen that in the hybrid



COLOUR INDEX OF COLONIES OF BEES

colonies 41 per cent and 21 per cent respectively of the workers showed .2 yellow and less, not to mention a considerable proportion that showed .3 yellow, while in the Italian colony there were no workers that showed less than .3 yellow, and 97 per cent showed .4 yellow. It is evident, therefore, that, assuming that the imported queen was pure and purely mated, an Italian queen mated with a black drone can be distinguished from one that is mated with a pure

Italian drone by the darker colour of many of her workers. This conclusion is at variance with the statement recently made by Newell (*Science*, February 5, 1915, Volume XLI, page 219) that "the purity of an Italian queen's mating cannot be determined by an examination of her workers" and "the only test of an Italian queen's mating is found in the colour of the drones produced by her daughters."

## THE DIVISION OF AGROSTOLOGY

### A SUMMARY REVIEW OF THE RESULTS FROM ALFALFA EXPERIMENTS

BY M. O. MALTE, PH.D., DOMINION AGROSTOLOGIST

WHEN alfalfa, some thirty to forty years ago, was first experimented with in Canada, it was mostly looked upon as a kind of curiosity from which general benefit to the agricultural development of the Dominion hardly could be expected. Its triumphant sweep through the Southern and Pacific parts of the United States, and its general success in certain countries of Europe, notably France, made it, however, imperative, to the Dominion Experimental Farms, to thoroughly investigate its adaptability to Canada.

To say that the first effort to make alfalfa live up to its reputation of being the "acme" of forage crops, met with general success, would hardly be correct. As a matter of fact, the first attempts to prove its universal usefulness to the Dominion were sadly frustrated. Failure after failure was recorded and success was encountered only in a few cases. From the many reports, often puzzlingly contradictory, it seemed likely that the much-heralded alfalfa would be of a rather circumscribed value to Canada as a whole.

But perserverance and untired

efforts have radically changed the alfalfa outlook. Today, there does not exist, in agricultural Canada, any alfalfa problem in the sense that its profitable growing is of a problematic nature. On the contrary, the multitude of experiments carried out by the Experimental Farms and Stations, especially during the last fifteen years, have clearly demonstrated that the alfalfa problem has been essentially solved and that "the King of the Clovers" has conquered the vast agricultural areas of the Dominion.

Many difficulties had, however, to be overcome. The strange nature of alfalfa, so unlike that of other "clovers", necessitated special methods of handling which only by repeated experiments could be dislodged. Its peculiar requirements to soil, its dependency on the subsoil, the difficulty to establish it on land where it had never been grown before, etc., meant so many problems to be studied and worked out. These problems are now all satisfactorily solved, and, to the practical farmer, the alfalfa road to success is now free from those obstacles which, at the beginning of the experiments, rested on lack of knowledge of the

proper handling and management of the crop. For detail information on these subjects the reader is referred to Experimental Farm Bulletins, Nos. 46, first series, and 8, second series.

During the course of the experiments, a problem of the most far-reaching importance arose.

In spite of all precautions taken, in spite of the best agricultural methods being employed for the safeguarding of the crop, it often happened that the alfalfa, or rather certain alfalfa strains, failed to come through the winters satisfactorily. A few years' experiments were sufficient to prove conclusively that in the majority of cases, the failure of a variety to survive during the winters without being totally or partially killed was due to the use of seed secured from countries with mild winters. Seed from Chili, Argentine, Arabia, Southern United States, etc., gave crops lacking in hardiness and thus liable to be winter-killed. On the other hand, there seemed to be a few outstanding varieties which, to a much less degree, were subject to winter-killing. The most prominent of those were *Turkestan* and so called *Variegated Alfalfa*, the latter being represented chiefly by the Grimm variety.

The discovery of hardy varieties was, of course, of immense benefit to the Canadian farmer in as much as money and labour could be more safely invested in alfalfa growing.

To the Experimental Farms, endeavouring to make alfalfa one of the essential forage crops in the Dominion, the existence of hardy varieties alongside of tender ones was most interesting. It brought up the question *why* certain varieties were hardy, and led to an analysis of the very nature of the hardiness. The results of these investigations which have been conducted during the last few years, are, in reality, of far greater importance than the discovery of hardy varieties itself.

A brief discussion of the meaning of the biological character called hardiness may help to explain how a thorough understanding of its nature is furthering the victorious advance of alfalfa through the Dominion.

May it be said, at the outset, that the nature of the hardiness is not necessarily the same in different varieties. Take for instance variegated alfalfa and hardy *Turkestan Alfalfa*. Both are of a hardy nature in the sense that they stand Canadian winters without injury, but if we analyze *why* variegated alfalfa is hardy, and *why* the *Turkestan* variety is hardy, we come to the conclusion that the varieties referred to represent two essentially different types of hardiness.

*The Variegated Alfalfas* have been originated as crosses between ordinary alfalfa and Yellow Lucerne. The latter species is a native of the Old World occurring through all parts of Northern Europe and Siberia. This distribution indicates that it is able to come through severe winters without being killed, in other words, that it is perfectly winter hardy. When Yellow Lucerne is crossed with ordinary alfalfa its ability to endure extreme cold is inherited by the cross and its off-spring. The hardiness of variegated alfalfas is therefore simply due to the inheritance of cold resistant qualities from the Yellow Lucerne.

The hardiness of *Turkestan* and *any other variety of pure alfalfa* is of quite a different type.

In variegated alfalfas the hardiness is due to the presence of Yellow Lucerne blood, that is to say to the presence of a hardiness character inherited from a uniformly hardy species. The pure alfalfas present a totally different problem. Their hardiness or tenderness is more of an individual character, *i.e.*, their hardiness or tenderness is determined by the hardiness or tenderness of the individual plants. A certain



strain may thus be completely winter-killed whereas another may be killed to say fifty per cent. That is to say one strain may be composed of individuals which, to one hundred per cent, prove unable to endure the winters, while another may possess individuals which to the extent of fifty per cent., are able to do so.

The correct interpretation of such facts has been arrived at through a study of those individuals which have proven hardy, or rather through a study of their progeny. Briefly, it has been found that *seed secured from surviving individuals produces plants which also survive.*

The significance of this is of the utmost importance. It means that surviving individuals represent hardy types or hardy strains. The fact that hardiness is an hereditary character opens almost unlimited possibilities for alfalfa in Canada. It simply means that, by elimination of all tender types and, as a consequence, by the saving and propagation of hardy types only, the problem of a successful evasion of winter-killing has been practically solved.

Results obtained by the Experimental Farms fully confirm this statement. As an illustration may be cited the experiments with alfalfa growing at Fort Vermilion, in the Peace River District.

For years, alfalfa has been tried

at this Sub-Station. For years only discouraging results have been recorded, in-as-much as all "varieties" have been badly winter-killed. In 1913, when, the importance of the hereditary nature of hardiness began to be fully recognized, the Fort Vermilion station was supplied with seed gathered from a few plants which had proven able to withstand severe winters. *This seed has produced a crop which shows no perceptible signs of winter-killing.*

There is no doubt that the ultimate success at Fort Vermilion is due to the use of seed originated from hardy types. A lengthy discussion to prove this conclusively is out of the question in this article. Suffice it to say that the Fort Vermilion experience is by no means an isolated one. Numerous results have been recorded which all tend to show that the ability of alfalfa to withstand severe winters can be most extraordinarily increased by the use of seed from hardy types or, which means the same, from hardy strains only.

*This means, to the farmer, that a safe way of making alfalfa growing a success is to utilize seed produced at home. By saving and using home-grown seed every farmer has it in his own hand to secure an alfalfa which is perfectly acclimatized to the conditions of his locality and which therefore can be expected to yield the very best returns.*

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## NEW APPOINTMENTS

Recent appointments to the staff of the Dominion Experimental Farms system are as follows: R. L. Ramsey, Assistant to the Superintendent, Experimental Farm, Agassiz, B.C.; R. D. L. Bligh, B.S.A., a recent graduate from the Ontario Agricultural College, Assistant to the Superintendent, Experimental Sta-

tion, Kentville, N.S.; B. C. Milne, B.S.A., graduate from the Manitoba Agricultural College, Assistant to the Superintendent, Experiment Station, Lacombe, Alta.; S. A. Bjarnason, a graduate from the Manitoba Agricultural College, Assistant to the Superintendent, Experimental Farm, Brandon, Man.

## THE ENTOMOLOGICAL BRANCH

### THE OUTBREAK OF THE WESTERN ARMY CUTWORM IN SOUTHERN ALBERTA

BY C. GORDON HEWITT, D.SC., DOMINION ENTOMOLOGIST

**D**URING 1914, the moths of the western Army Cutworm (*Chorizagrotis*) were extremely abundant in Southern Alberta, and it was thought that a serious outbreak of the caterpillar would probably occur in the spring of the present year. Such has proved to be the case. Throughout April and early May, Mr. E. H. Strickland, Field Officer of the Branch stationed at the Entomological Laboratory, at Lethbridge, Alta., demonstrated at many points the value of early trenching to control this cutworm. Fields which were known to be infested were selected for demonstration purposes and deep furrows were ploughed around them, after which a log with a man standing thereon was drawn through the trench to crush the pieces of earth and thus make a dust furrow. As soon as the caterpillars recovered from their winter inactivity and began to migrate, they wandered into the trenches, where they were killed by devouring a poisoned bait made by adding 1 pound of Paris green to 50 pounds of shorts and then pouring in 1½

gallons molasses dissolved in one gallon of water. Ten pounds of the shorts is sufficient to treat 70 rods of furrow. In one experiment 537 dead worms were found in one foot of trench. Stinkweed and alfalfa hay poisoned with Paris green and placed along in the trenches was also found of value. The use of poisoned stinkweed as a bait is a novel discovery of Mr. Strickland's of no little significance in view of the prevalence of this weed on neglected lands and its increase. The appearance of the cutworm is influenced probably by the occurrence of this weed upon which the female moth deposits her eggs. The relation of the cutworm to the prevalence of this and other weeds has its own moral and constitutes a matter of distinct interest. This species is different from the cutworm of which an outbreak occurred two or three years ago and which was investigated by Mr. Strickland. Its habits, and consequently the methods of control, are different.

Further details of this work which is now in progress will be published in a later issue of THE GAZETTE.

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## THE FRUIT BRANCH

### ONTARIO FRUIT CROP PROSPECTS

**S**O far as we are able to report, the apple crop of Ontario promises to be below average. In the northern, southern and western sections, where an inspection was made at blossoming time, there

were few instances of a heavy bloom. The very large crop of 1914 also leads one to believe that this year the production in Ontario will not be great.

Plums and cherries have shown an

excellent blossom and peaches promise to bear a full crop. Some danger was anticipated from frost in the Niagara Peninsula, but up to the present time (May 15th) no injury

has been reported.

A full report of fruit conditions throughout Canada was published for general distribution on June 1st.

### ONTARIO BASKET FACTORIES

A second visit has just been made, by a representative of this Branch, to the basket factories of Ontario. At the time of the first inspection—a report of which appeared in the May number of the GAZETTE—there was a great lack of uniformity in the sizes of packages which were then being made. The manufacturers were shown where alterations and improvements were necessary, and it

is a great satisfaction to know that practically all fruit packages now being made are of correct dimensions and of strong material. All the managers have corrected their previous mistakes and the result is that no discrimination can be shown by growers in favour of any one particular factory. In order that this state of things may continue, there will be quite frequent inspections made throughout the year.

### FRUIT INSPECTION STATISTICS

THE following figures indicate the ratio between the number of packages of fruit inspected in the season of 1914-15, and the total number of packages in the lots inspected. These inspections

were made by the staff of Fruit Inspectors, temporary and permanent, numbering about 50 in all. The figures also show the total number of inspections which were made.

VARIETY	No. of Lots Inspected	No. of Pkgs. in Lots Inspected	No. of Pkgs. Inspected
Apples, barrels, 1914-15.....	8,926	765,445	59,602
“ boxes, 1914-15.....	2,769	457,055	36,118
“ baskets, 1914-15.....	191	29,476	3,994
Crab apples, boxes, 1914-15.....	38	2,443	951
Pears, boxes, 1914-15.....	894	91,121	9,760
Peaches, boxes, 1914-15.....	735	183,952	10,035
“ baskets, 1914-15.....	147	17,797	2,422
Plums, baskets, 1914-15.....	643	180,154	12,294
Tomatoes, baskets, 1914-15.....	305	103,742	12,171
Small fruits, quarts, 1914-15.....	1,162	1,529,598	151,559
Grapes, baskets, 1914-15.....	244	303,728	22,394

# THE SEED BRANCH

## UNUSUAL DEMAND FOR SEED GRAIN

BY GEO. H. CLARK, B.S.A., SEED COMMISSIONER

A general demand for good seed of cereal grains commenced soon after last harvest, and the quantity that has been distributed through the usual channels of commerce is much in excess of the average. Through the eastern provinces the amount of seed wheat and oats sold by seed merchants during the last five months in many districts has been two or three times that of the average year. The supply has been in plenty and farmers have never been more particular as to quality than this year.

Seldom have climatic conditions in all parts of Canada been more favourable to rapid progress in seeding operations. The anxiety because of continued dry weather during the early part of the season for seeding, served to stimulate to an application of more thorough cultural methods. The rush of work at the seed-testing laboratories at both Ottawa and Calgary was over this year at least two weeks earlier than usual, which may be taken as a fair index to the general progress of spring seeding. Recent reports from numerous centres, and particularly from the Prairie Provinces, indicate that unusual efforts have been made everywhere by farmers in general, by using superior seed grain, extra cultivation and early seeding to insure a good crop, and what is most important they have during the past two weeks been favoured with rainfall which has been general and sufficient.

Apart from the increased areas sown to wheat and oats, the supply and demand for seeds of other crops has been about normal. Our seed

inspection returns to date show a marked improvement in the conditions of the grass and clover seed supplies. Only in a few unimportant lines, such as vetches, dwarf Essex rape and garden beans, has severe shortage been felt, and with these crops substitutes may be provided.

Farmers should be warned against placing confidence in casual agents who in some districts are quite active again this year, particularly in parts of the province of Quebec, and who are selling seed of very ordinary or worthless kinds and quality, at abnormal prices. Sweet clover is being grossly misrepresented and the seed is being sold to farmers under names unfamiliar to them at prices that leave excessive profits to unscrupulous agents, who dare not return to the locality of their former operations.

There are indications that the high prices for wheat and oats, and the low values to producers of potatoes and some other crops are having their most natural usual effect. The areas devoted to the former this year are being increased everywhere in most cereal producing countries and there is some danger that the areas devoted to potatoes and other crops that are not in general demand for export, may fall much below the average. There is this year an abundant supply of excellent potatoes suitable for planting, and farmers throughout central Canada should take advantage of the present condition of the supply to secure fresh stock of seed potatoes that are of good vigour as the result of having been produced in a cool moist climate.



Ample intimation has already been given respecting supplies of field root and garden vegetable seeds which heretofore have come mainly from France, Germany, England and other European countries. It is not to be recommended that Canadian farmers and gardeners should undertake the production of these seeds on an extensive scale until they have had experience with them, but it is much to be recommended that they

this year transplant 50 or 100, or even 500, good, shapely sound roots or plants from which to obtain good seed for themselves, and also make provision for next year by procuring the purest available seed of the best variety to grow seed roots for transplanting next spring. It is reasonably certain that they may need both the experience in seed growing and the seed itself.

## THE HEALTH OF ANIMALS BRANCH

### THE ANIMAL CONTAGIOUS DISEASES ACT

**B**Y Order-in-Council the order under "The Animal Contagious Diseases Act" of date the 9th day of May, 1915, is hereby amended as follows:—

"Hay in car lots from the States of Minnesota, North and South Dakota will be admitted, provided each shipment is accompanied by an affidavit that the hay is the product of these States."

### SWINE SLAUGHTERED IN INSPECTED ESTABLISHMENTS

YEARS ENDING MARCH 31st, 1914 AND 1915.

Eastern Canada, 1915.....	1,751,732	67.40 per cent of total kill.
"    "    1914.....	1,230,467	68.41 per cent " " "
Increase.....	521,265	42.36 per cent over 1914.
Western Canada, 1915.....	847,006	32.60 per cent of total kill.
"    "    1914.....	568,189	31.59 per cent " " "
Increase.....	278,817	49.07 per cent over 1914.
All Canada, 1915.....	2,598,738	
"    "    1914.....	1,798,656	
Increase.....	800,082	44.48 per cent over 1914

The number of swine slaughtered in Canada at inspected establishments during the year ending March 31st, 1915, was 2,598,738.

# THE LIVE STOCK BRANCH

## RECORD OF PERFORMANCE

THE Record of Performance of pure-bred dairy cows continues to grow in popularity and extent of scope, both as regards the number of animals for which applications are received and which qualify for entry. During the year applications were presented from breeders in all the provinces of the

Dominion, Manitoba having been included in the itinerary of the inspectors some months since. Owing to the extension of the territory, and to the increase in the number of entries, it has been necessary to add two additional permanent inspectors to the staff.



SHORTHORN COW, "DAIRYMAID" 86086

### NUMBER OF COWS FOR WHICH APPLICATIONS HAVE BEEN RECEIVED

Holstein.....	641	Increase as compared with preceding year	75
Ayrshire.....	487	" " " "	123
Jersey.....	159	" " " "	44
Guernsey.....	30	" " " "	15
French Canadian.....	17	Decrease " " " "	16
Shorthorn.....	77	" " " "	13
Total.....	1,411	Increase " " " "	228

NUMBER OF COWS QUALIFIED						
Holstein.....	196	Increase as compared with preceding year				31
Ayrshire.....	123	“	“	“	“	4
Jersey.....	35	“	“	“	“	5
Guernsey.....	9	“	“	“	“	7
French Canadian.....	14	“	“	“	“	12
Shorthorn.....	36	“	“	“	“	27
Total.....	413	“	“	“	“	86



HOLSTEIN COW, "MAY ECHO" 3372.

The records made during the year have not been remarkable, except in the case of the French Canadian and Shorthorn breeds. For both of these breeds records have been made which exceed any previous record made since the commencement of the test. The two highest records made in each of the breeds are as follows:

SHORTHORN		Lb. Milk	Lb. Fat
"Dairymaid" 86086, owned by S. A. Moore, Caledonia, Ont.....		15,535	540
"Gipsy Lady 2nd" 52080, Estate of W. A. Smith, R.R.No. 1, Clandeboye, Ont.....		11,578	530

FRENCH CANADIAN			
"Filie" 2130, owned by Sir H. Montagu Allan, Beaconsfield, Que.....	10,767		453
"Denise Championne 13" 1625, owned by Sir H. Montagu Allan.....	10,140		413

GUERNSEY			
"Gipsy of Willow" 392 ( 4 year-old), owned by H. A. Dickson, Central Onslow, N.S.....	11,445		520
"Gipsy of Willow" 392 (mature), owned by H. A. Dickson, Central Onslow, N.S.....	10,249		507





JERSEY COW, "SADIE MAC OF P. R. F."



AYRSHIRE COW, "MILKMAID 7TH" 28769

## HOLSTEIN-FRIESIAN

"May Echo" 3372, owned by W. P. Allison, Chesterville, Ont. ....	23,707	834
"Dairy Pauline Pietertje" 7042, owned by Archibald Parks, Napanee, Ont. ....	23,807	830

## JERSEY

"Sadie Mac of P.R.F." 406, owned by Hiram H. Gee, Hagersville, Ont. . .	15,211	754
"Sunbeam of Edgeley" 629, owned by Jas. Bagg, Edgeley, Ont. ....	14,450	727

## AYRSHIRE

"Milkmaid 7th" 28769, owned by A. McRae & Sons, Charlottetown, P.E.I. ....	16,696	729
"Primrose of Tanglewyld" 15943, owned by Wooddisse Brothers, Rothsay, Ont. ....	16,195	626

It should be observed that the higher average production of all cows qualifying and the higher percentage of cows which qualify is particularly significant as regards this year's operations.

## DISTRIBUTION OF BULLS

THE following table shows the number of applications that have been made for bulls in connection with the distribution policy of this branch, which was inaugurated in 1914. Mention of this distribution was made in THE GAZETTE, (Volume 1, No. 8, August, page 616.) The total number of bulls loaned to associations, as shown in the foregoing reference, was 414. Applications have been received this year from 502 associations, showing that the efforts of the branch in this direction are being appreciated and that associations are taking advantage of the opportunity presented for stock improvement.

APPLICATIONS FOR BULLS FOR THE SEASON OF 1915

	B.C.	Alta.	Sask.	Man.	Ont.	Que.	Mari.	Total
Shorthorn.....	6	67	126	13	21	54	16	303
Ayrshire.....	3	1	1	..	2	76	25	108
Holstein.....	6	2	9	2	4	18	5	46
Hereford.....	..	4	5	4	..	3	1	17
Angus.....	..	3	4	4	1	..	..	12
Jersey.....	1	..	..	..	..	1	..	2
Canadian.....	..	..	..	..	..	6	1	7
Red Polled.....	..	2	2	1	..	..	..	5
Guernsey.....	..	..	..	..	..	..	1	1
Galloway.....	..	1	..	..	..	..	..	1
	16	80	147	24	28	158	49	502

# PART II

## Provincial Departments of Agriculture and of Education

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### SHORT COURSES

The following series of articles describes in detail the short courses in agriculture and related subjects held during the year beginning March 31st, 1914, and ending March 31st, 1915, in all the provinces ex-

cepting Alberta and British Columbia, and in each of the provinces similar courses have been held and horticultural instruction given in British Columbia as outlined on page 460 of the May GAZETTE.

#### PRINCE EDWARD ISLAND

BY THEODORE ROSS, SECRETARY FOR AGRICULTURE

THE following short courses were held in the province of Prince Edward Island during the year beginning March 31, 1914, and ending March 31, 1915:

##### COURSE FOR PUBLIC SCHOOL INSPECTORS

During the first three weeks of June a special course in nature study and school gardening was provided for school inspectors who are at the same time agricultural instructors in the public schools. Nine attended, the tenth was not at that time appointed. Instruction was provided by Prof. W. Davison, B.S.A., of the Department of Agriculture; Prof. F. F. Smith, of Buzzards Bay, Mass., and by members of the Departments of Agriculture and of Education.

The classwork was altogether confined to such subjects as would have a direct bearing on the teaching of nature study, but was of an advanced

nature. In conjunction with the course a number of conferences were held attended by the principal of Prince of Wales college, the Superintendent of Education, Secretary for Agriculture, Inspectors and Instructors. At these meetings a skeleton course of nature study suitable for public schools was drawn up and discussed and is now in use through the schools of the province.

##### SUMMER SCHOOL FOR TEACHERS

The summer school for teachers was held in Charlottetown from July 7th to 29th. There were 517 members enrolled, 105 men and 412 women.

Five hours each day were devoted to class work under the best specialists in the teaching profession that could be obtained. The remainder of the day was devoted to laboratory and field work, and to lectures and discussions.

A large number of scholarships were offered by public spirited citizens of the Maritime Provinces for competitions at this session of the school.

The following composed the faculty of the school and the subjects taught by them.

- Prof. George Chavignaud, Halifax, N.S., Drawing.  
 Miss Grace E. Hackett, Boston, Mass., Drawing.  
 Prof. D. S. McIntosh, D.Sc., Halifax, N.S., Geology.  
 Prof. E. Chesley Allen, Yarmouth, N.S., Zoology.  
 Prof. D. W. Hamilton, Ph.D., Montreal, Que., Agriculture and School Gardening.  
 Prof. W. N. Biggar, Sussex, N.B., Manual Training (Cardboard Work).  
 Prof. James C. Clarke, Boston, Mass., Manual Training (Wood Work).  
 Prof. S. A. Starratt, B.Sc., Boston, Mass., Physiology.  
 Miss Mary M. Wood, New York City, English Literature.  
 Prof. G. B. Reid, Ph.D., Cambridge, Mass., Botany.  
 Prof. W. J. Reid, B.S.A., Charlottetown, P.E.I., Chemistry.  
 Prof. S. J. M. Allen, Ph.D., Cincinnati, Ohio, Physics.  
 Prof. W. Davison, B.S.A., Charlottetown, P.E.I., Nature Study.  
 Prof. J. L. Tennant, B.S.A., Charlottetown, P.E.I., Nature Study.  
 Prof. F. F. Smith, Buzzards Bay, Mass., Nature Study.  
 Miss Bertha Gorman, Charlottetown, P.E.I., Elocution.

All the science subjects were taught with special reference to their bearing on agriculture. The school was primarily an agricultural school for teachers.

In addition to the foregoing an opportunity was given to teachers to qualify for the Teachers' Certificate in Physical Culture. The Department of Militia and Defence furnished two instructors, viz.: Sgt. Instructor Irlem, of Fredericton, N.B., and Instructor M. Miller, of Charlottetown. Each teacher who qualified was given a bonus of \$15.00 by the Department of Militia and Defence. Upward of three hundred qualified.

#### HORTICULTURAL AND OTHER COURSES

A short course in horticulture was held from November 17th to December 5th. It was attended by twelve students. Instruction was given in the making of apple barrels and in packing of apples in boxes and barrels by Prof. Leslie Tennant, B.S.A., of the Department of Agriculture, and by A. E. Dewar, President of the Fruit Growers' Association.

Short courses in animal husbandry, in cereal husbandry and in milk testing were held from January 4th to 15th, 1915. The number in attendance was 220. The practical work was carried on by Prof. W. J. Reid, B.S.A., Instructor in Cereal Husbandry, Prof. J. Leslie Tennant, B.S.A., District representative for Kings County; Mr. J. A. Clark, B.S.A., Supt. Experimental Farm; Mr. F. T. Morrow, Inspector of Cheese Factories and Creameries; Richard Creed, Albion, Kings county; and W. R. Shaw, of St. Catherines.

#### HOUSEHOLD ECONOMICS

Under the direction of the Women's Institute branch there was one course consisting of five classes, with an average of twenty-five students, held in household economics. This course was held in conjunction with the Prince of Wales College, Charlottetown. No classes were held at outside points.

Several new topics were taken up for the first time, namely dietetics and nutrition, household furnishing, arrangement of an efficient kitchen, with a view to saving steps, millinery, vegetable gardening, landscape gardening, tuberculosis, household administration, farm home conveniences, laundry, which were all well received.

Judging from the interest in certain of the above subjects the method of practical demonstration and application seemed to be the most appreciated, and the most profitable means of instruction.



## NOVA SCOTIA

BY M. CUMMING, B.S.A., SECRETARY FOR AGRICULTURE

**N**EVER in the history of the Nova Scotia Department of Agriculture have such a successful series of short courses been held as that which was completed on March 4th. To begin with there was the two weeks' short course held at the college at Truro during January, the enrolled attendance at which was 286, practically all from the province of Nova Scotia, the adjoining provinces of New Brunswick and Prince Edward Island having held courses of their own.

Even more successful, if possible, were the five short courses, each of three or four days' duration which were held at Bridgewater, Yarmouth, Shubenacadie, Musquodoboit and Antigonish. In each of these places the local Agricultural Society or similar organization have made contributions of the necessary land and also part of the money. These, supplemented by funds provided under the AGRICULTURAL INSTRUCTION ACT provided the means necessary for the erection of demonstration buildings in which the courses were held. These demonstration buildings contain one or more large class rooms capable of seating 300 or more students, and are well suited for demonstrations in live-stock judging, seed judging as well as lectures.

No pains were spared to make these courses successful. The lecturers, for the most part, were the senior members of the college staff at Truro assisted by B. L. Emslie, fertilizer expert of Toronto, J. A. Clark, Superintendent Experimental Farm, Charlottetown, and others. Morning, afternoon and evening sessions were held, the hours being from 10 to 12 a.m., 1.30 to 5 p.m., and 7.30 to 9.30 p.m. The usual procedure was to hold in the mornings, lectures and conferences on soil cultivation, manures and fertilizers, etc. In the afternoons, demon-

strations in the judging of live stock of all kinds and seed were held. In the evening, lectures on the care and management of live stock, soil cultivation, etc., were given. One evening at each course was devoted to the very important subject of "Patriotism and Production," and without exception this was the largest meeting at each course.

At each place locally owned stock was used for demonstration purposes and for the most part proved very satisfactory. Moreover a feature at every course was an informal conference on local agricultural problems which always proved most valuable. At the evening lectures lantern slides were used to a considerable extent for purposes of presenting pictures of the best types of live stock, barn construction, soil cultivation and drainage.

In one or two cases bad weather caused a somewhat reduced attendance at the morning sessions, but this was largely off-set by attendance at some of the evening meetings of from 250 to 350. The general average at every session of the five courses, morning, afternoon and evening was 147.

So successful have these short courses proven that the Department would like to extend them through every part of the province. The difficulty, however, is to be able to secure thoroughly efficient men, for without such men these courses would never attract the interest and arouse the enthusiasm which they do. The college faculty was drawn on to about its limit in connection with these five courses. It would seem that in the future the agricultural staff must be increased in numbers and no doubt this will be done as the country realizes the efficient work which is being accomplished through the short courses as well as through the many other lines of work which are now being carried on.

## DEPARTMENT OF EDUCATION

BY A. H. MACKAY, B.A., SUPERINTENDENT OF EDUCATION

THE "short courses" in Nova Scotia conducted in the departments under the Provincial Secretary (who is virtually also Minister of Education and Agriculture) may be classified into three groups:

1. The Academic Education Sub-Department.

2. The Technical Education Sub-Department, and

3. The Agricultural Department.

As the latter class are dealt with by the Secretary of Agriculture, Nos. 1 and 2 only need be considered here.

I. In the sub-department of *Academic Education* there were the following kinds of "short courses"—  
"A" those *not* exceeding *four* days, and  
"B" those *exceeding* *four* days:

## A.

1. The Eastern Teachers' Normal Institute held four days in the town of Hawkesbury during the week beginning 15 December, 1913. It was conducted under the auspices of the four Inspectors of the six eastern counties of the province, for the benefit specially of the younger and untrained teachers of these counties.

2. The Inter-provincial Educational Convention (N.S., N.B., and P.E.I.) at Halifax 26, 27 and 28 August, 1914. Attendance of enrolled members 413.

3. Cumberland County Teachers' Institute met at Oxford 7, 8 and 9 of April, 1914. Enrolment of teachers 219.

4. Annapolis and Digby Teachers' Institute met at Weymouth, 8 and 9 April, 1914.

5. A Teachers' Institute was held in Middle Musquodoboit, Halifax county, in February, while the short Agricultural Course conducted by the Agricultural College was in progress. The teachers of that district of the county were

nearly all in attendance. Rural Science, that is elementary agricultural and horticultural teaching in the schools, was the leading subject, with exhibitions of school pupils' work in raising cereals, vegetables, poultry, etc.; of collections of insects, injurious and beneficial, plants, weeds, seeds, etc.

6. Teachers' Institute at Caledonia, Queens County, for two days, attended by 9 men and 25 women.

7. Teachers' Institute at Great Village for two days, attended by 10 male and 50 female teachers.

8. Teachers' Institute at Tatamagouche for two days. Present, 3 male and 27 female teachers.

9. Teachers' Institute at Kentville, 17 and 18 December. Fifty teachers present. Model lessons given, observed and discussed.

10. Small Institute at Canso, for two days. Ten women present. School garden exhibitions, one day, 30 present.

11. Short course at Antigonish, for three days, studying farm animals. Present 300 men and 50 women.

12. Poultry show, 2 days, 150 men, 100 women present and prizes awarded.

13. Cereal show, one day, 180 men and 50 women present and prizes awarded.

14. St. Francis Xavier University gave a short history course, 6 days, 45 men and 30 women being present.

## B.

The longer short courses were:—

1. The Summer Science School for the Atlantic Provinces, Prince Edward Island, Nova Scotia and New Brunswick, which is subsidized by the three provinces, met during this year in Charlottetown from 7 to 29 July, with a total enrolment of 517. Of these 81 were from Nova Scotia.

This organization started in 1886 in Nova Scotia as a vacation school of practical work in science teaching for the public schools. It is peripatetic, changing its location each year with a view of giving new ground to the naturalists whose services as instructors were originally obtained in exchange for the opportunity of meeting with collaborators in new grounds.

2. The Rural Science Training School at Truro, in affiliation with the Normal and Agricultural Colleges there, met from July 8 to August 6, with an enrolment of 135.

The courses arranged for are completions of the pure and applied sciences course followed for the previous portion of the year in the Normal College, and classes adapted for teachers employed during the school year, who desire to take classes which in two or three years may qualify them for the Rural Science diploma without giving up their schools for a year. The Dean of this training school is assisted by the science teachers of the Normal and Agricultural College, and other specialists, the Director of Rural Science Schools being the most active force on the staff.

II. In the sub department of *Technical Education*, the following short courses were given. They do not include the regular College courses, nor the regular secondary technical classes in operation during the winter months in the various centers of population throughout the province:

#### NOVA SCOTIA TECHNICAL COLLEGE

Short courses were offered at the Nova Scotia Technical College

covering instruction in the following subjects:—

Land surveying, architecture, structural drafting, steam engineering, machine design, electrical machinery, coal mining, metallurgy of iron and steel, chemistry and assaying.

The requirements for admission to these short courses were simply that (1) the student should have an education equal to that given in the eighth grade of the common schools and (2) practical experience in the line with which the subject deals.

#### GENERAL REMARKS

Teachers' Institutes have been conducted in the old manner, by specimen lessons taught by the most expert teachers within the inspectorate, assisted by one or more instructors from the Normal College or a neighbouring inspectorate, with discussion of the methods. Hortatory and theoretical speeches and papers are often interspersed. But the dominant attention to special subjects varies from year to year. For some time the teaching of elementary science by object observation and the so-called Nature Study methods have been illustrated and expounded. This has now developed into The Rural Science cult, which is being vigorously developed under the direction of Rural Science schools.

Short Courses of *Domestic Science* and *Mechanic Science* are provided in connection with the regular Normal College work, and as a part of the Rural Science Training School in vacation time July and August. These are not specified in the short courses mentioned.



## NEW BRUNSWICK

## AGRICULTURE

BY R. NEWTON, B.S.A., DIRECTOR OF AGRICULTURAL SCHOOLS

THE programme of courses as carried out was as follows:—  
Newcastle, N.B.,—Four days' course (general)—December 1-4, 1914.

Woodstock Agricultural School:—

Six weeks' course (general)—  
January 5—February 12, 1915.

Four days' course (general)—  
February 9-12, 1915.

Sussex Agricultural School.—

Two weeks' course in Dairying,  
Horticulture, Poultry and Bee-  
Keeping—March 2-13, 1915.

dents had the option of taking one or both courses, and it was hoped in this way to encourage a larger total attendance than could be secured by a single general course four weeks in length. However, there was little apparent effect in this direction, and the results on the whole are in favour of a longer general course. Students do decidedly better work, and are less apt to suffer mental indigestion, when they are following a general course rather than having too much of one subject given to them in a short time. Further, students who



A SHORT COURSE CLASS AT AGRICULTURAL SCHOOL, WOODSTOCK, N.B.

Two weeks' course in Live Stock,  
Field Crops and Soil Management—  
March 15-27, 1915.

Three days' course (general)—  
March 25-27, 1915.

The work at Sussex, it will be noted, was divided into two consecutive courses of two weeks each, in which an effort was made to group the subjects in such a way as would be most acceptable and profitable to those who could afford to take only one of the courses. Stu-

remain with us for a longer period acquire to a greater extent the "student spirit"—the spirit of investigation and inquiry which leads them to make better use of their opportunities.

A number of new features were introduced into the courses this year, some with a view to furthering various lines of work which have been undertaken recently by the Department of Agriculture for the benefit of the farming community.



In connection with the drainage campaign being carried on in the province, one of the most serious problems has been to secure a sufficient supply of tiles at reasonable cost. At each course this winter a demonstration was given in the home making of cement tiles.

Last year an organization called the New Brunswick Agricultural Societies United was formed to act as a central purchasing agency for raw fertilizer materials intended to displace the more expensive ready mixed goods, of which New Brunswick uses comparatively an immense quantity. This has been successful in making large savings for the farmers, but there was need of instruction in proper methods of home mixing. Accordingly a demonstration in this work was given at each course, as well as at many other points in the province.

As a part of the fertilizer work was included a discussion of the function of lime in the soil. A machine for pulverizing limestone is now being used by the Department of Agriculture for making demonstrations in various parts of the province, and samples of its product were passed around for examination by the farmers. The value and uses of this material were explained fully.

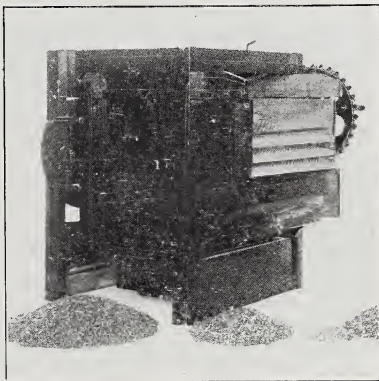
Demonstrations in the killing and plucking of poultry, in the proper use of the fanning mill for grading seed grain, and in the treatment of grain for smut were, along with those mentioned above, included among the newer features of the three and four days' courses.

During the longer courses two new and interesting lines of work were taken up. These were an experiment conducted by the students in the crate-fattening of poultry, and a study of grain samples supplied by the students from seed intended for use on their home farms in 1915.

Three crates of live poultry were fed in different ways, the students keeping a record of the weight of the

fowls when they were put in the fattening crates, the amount and cost of the feeds used, and the weight of the fowl at the end of the course, when they were used for killing and plucking demonstrations. In this way the possibilities of crate fattening were clearly shown, and the students had first hand experience in the weighing out and mixing of feeds, and in the relative value of different rations.

For the study of grain samples we had made to order a working model, complete in every detail, of a fanning mill commonly in use throughout the country. Its dimen-

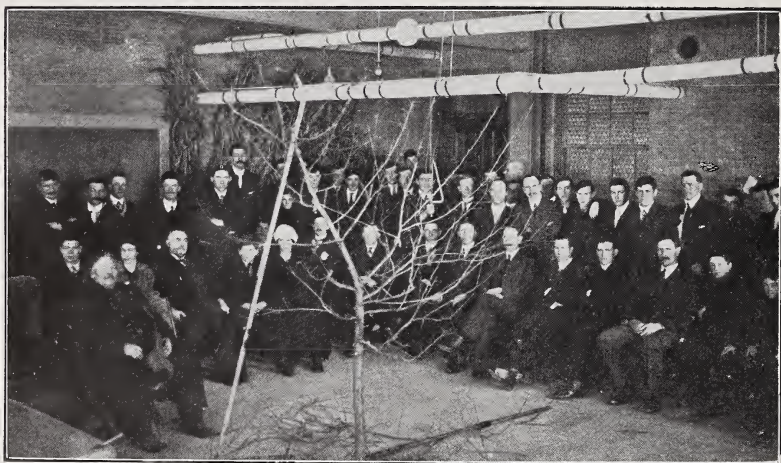


CLASS-ROOM FANNING MILL  
Dimensions 22" x 22" x 18"

sions are 22 inches long, 18 inches wide, and 22 inches high. This does the work almost as well as a full sized mill, and is much more convenient for class-room purposes, especially when working with small quantities. The instructor in field crops had the students handpick a pound of the grain as it came from the farm, to find the percentage of large plump seed. Other portions were put through the fanning mill one, two, and three times, and the product subjected to the test of hand-picking. This work brought out strikingly the quality of the seed

grain in common use, as well as the value of the fanning mill for both grading the grain and removing the seeds. The instructor in biology had the students make exact determinations of the percentage of weed seeds, and followed this with a study in identification and methods of control. The samples were also examined carefully for smut, ergot, or other diseases. Our intention was to complete the work with germination tests, but this year time did not permit.

of the course in dairying. For pruning and grafting of apple-trees, visits were paid to nearby orchards, and good-sized trees were also brought into the class-room. For stock judging work, good representatives of the leading breeds were brought into the class-room; also, the members of the class visited the stables of some of the leading breeders of the neighbourhood. Advantage was taken of these visits to make a practical study of building construction and ventilation systems.



DEMONSTRATION IN APPLE-TREE PRUNING

The method of presentation in the three and four days' courses was confined very largely to making practical demonstrations, with explanatory lectures. The remaining lectures were illustrated in almost every case by lantern slides. It has been found advisable that talk, unaccompanied by demonstration or the use of illustration material, should be reduced to a minimum.

In the longer courses half the time was devoted to laboratory work, and the periods were made as practical as possible. Practice for every student in Babcock testing and butter making was provided as part

A bulletin reading course prescribed for the students at the longer courses is a feature worthy of note. Copies of one or two of the best bulletins obtainable, bearing upon each subject of study, were provided in sufficient number so that a complete set could be loaned to each student at the beginning of the course. As some of the bulletins were obtained with difficulty and others at considerable expense, students were required to return them at the end of the course. Those who afterwards desired copies for their private libraries were directed to the proper sources.

A complete description of our courses would occupy too much space, but the instances quoted will be sufficient to illustrate our methods of work. Though this year's experience will enable us to make

several improvements in the details of the work for next season, we feel that our courses of the past winter have, generally speaking, been successful in meeting at least a part of the need of the farming community.

### HOUSEHOLD SCIENCE

BY HAZEL E. WINTER, SUPERVISOR OF WOMEN'S INSTITUTES

SO successful was the short course in Household Science held at Sussex during the winter of 1914, for the benefit of the women of rural districts, the Department of Agriculture felt encouraged to hold three courses during the winter of 1915, taking up the following subjects:

Cooking, theory and practice; composition of foods and food values; a short course in waitress' work; hygiene and sanitation; home nursing; sewing; house-planning and interior decoration.

Two of these courses, held in the agricultural schools at Woodstock and Sussex, January 5th to 16th, and February 16th to 27th, respectively, were held in conjunction with the agricultural courses, and were so arranged that students could take advantage of lectures on dairying, poultry-raising and horticulture. The other course was held in the high school at Chatham, January 26th to February 6th. The courses were so simplified that, combining practice with theory, the knowledge gained thereby, could be applied to daily living.

The cooking, house-planning and interior decoration, and sewing classes, were in charge of Miss Imogene Jonah, of Sussex, a household science graduate. As will inevitably happen, greater enthusiasm was displayed in the cooking classes. Each day students were given an opportunity to prepare and serve a meal where the family income, cost of food, sanitary cooking and nutritive value were considered. The correct proportions of each of the

food principles necessary for a day's rations, for those of different age, sex and occupation were emphasized, thus giving the pupil an opportunity to arrange properly-balanced menus.

Attention was paid to the selection of supplies from an economic and useful standpoint, thereby developing an interest in marketing and accounts. Upon different occasions enthusiastic students visited the butcher shops of the town to become familiar with prices and cuts of meat. A very practical demonstration was given by one of the butchers, when he cut several quarters of beef, veal and pork, allowing the students to handle and become familiar with the various cuts.

The lectures on the plan, decoration and care of the house, proved intensely interesting and instructive. Attention was given to the most desirable location for a house, when treatment of soil and proper drainage need to be considered before building, and in order to have a comfortable home, heat, light, water, ventilation and sunshine must be thought of. From day to day lectures on treatment of floors, walls and ceiling decorations, bed-room and living-room conveniences, the proper equipment of the kitchen, etc., led to discussion on the transformation of old houses, the modernization of the farmhouse, and intelligent furnishing when beauty of simplicity should be considered.

The sewing class occupied two hours each day and included lessons in cutting, fitting and embroidery. Many pupils at the beginning of the course knew absolutely nothing



about sewing, but before the course had finished were able to cut out and make plain shirt-waists, skirts, nightdresses, kimonos, etc. At the close of each course, articles completed were exhibited.

The hygiene, sanitation, and home nursing classes were conducted by Miss Hattie Brown, of Fredericton, a graduate nurse. The lectures on hygiene included: Hereditary diseases, baths, care of the hair, teeth, nails and feet, habits, occupation, exercise and rest, clothing, location of the home and out-buildings, water supply, sewers and cesspools, sinks, care of garbage and disposal of same and general cleanliness in the home, constituting lectures on sanitation, which in many cases were followed by very-much-alive discussions. Too much stress cannot be laid upon the importance of every homemaker being able to minister to the sick and to "keep her head and act wisely" in first aid work. The students in these classes showed keen interest by asking intelligently thought-out questions and keeping their pencils continually busy, staying after hours in many instances in order to obtain complete notes.

Lectures, followed by practical demonstrations, made up the home-nursing class and included: Location and furnishing of the sick-room, ventilation and temperature, beds and bed-making, changing of bed linen with the patient in bed, changing or turning mattress with the patient in bed, getting patient up out of bed for the first time, bodily comfort of patient, different kinds of baths, different methods of taking patient's temperature, counting pulse and respiration, care of typhoid patient, disinfection of bed linen and excreta. The making of poultices, mustard plaster, fomentations and their application, band-

ages and bandaging, the application of splints, fracture boxes, artificial respiration, the keeping of charts and notes for the doctor.

A lecture was given on every contagious disease and the care of the patient during sickness, convalescence or death. The important symptom to be looked for was also mentioned. Pupils were warned to be careful of the eyes during a case of the measles and to watch for heart symptoms in diphtheria. Included in contagious diseases were: Scarlet fever, small pox, diphtheria, measles, chicken pox—and mumps. Much emphasis was laid upon the proper method of fumigation of the room and contents after a contagious disease.

The emergency nursing treated with fractures, dislocations, sprains, foreign bodies in the eye, ear, nose and throat, sunstroke, fainting, hysteria, asphyxiation, intoxication, convulsions, shock, common poisons, their antidotes and treatment, burns and scalds produced by acids and alkalies, drowning, frost bites, fire. Not only was the nurse able to give instruction in First Aid, but a round-table discussion brought out many valuable suggestions which in many cases experience had taught the pupils.

The short courses this winter, differed from last in that they were held for the benefit of women's institute members only, and the Department being anxious to give all students an opportunity for individual work, only 40 applications were considered for each separate course. It is a lamentable fact that several applicants were turned away, but these courses have become so popular it is very probable the number will be doubled next winter, thus giving many more members an opportunity to attend.



## QUEBEC

BY A. L. GAREAU, OFFICIAL LECTURER, DEPARTMENT OF AGRICULTURE

**O**KA Agricultural Institute from the 11th to the 23rd of January, 1915. These courses, eminently practical, are divided into four main classes:

- (a) Soils and field crops by Professor I. J. A. Marsan; the vegetable garden by Rev. Father Athanasie; the orchard, by Rev. Fathers Honore and Leopold.
- (b) Dairying; allied industries; breeding, by Rev. Father Isidore and Prof. A. Hansen.
- (c) Poultry-breeding, by Rev. Fathers Liguori and Wilfred and Rev. J. B. Allaire; bee-keeping, by the Rev. Father R. P. Maur, Dr. Lalonde and Mr. J. Beauline; sugar-making, by Mr. J. H. Lefebvre.
- (d) Rural economy, by Messrs. I. J. A. Marsan, J. B. Trudel, A. Vanier, G. Henry and J. C. Magnan.

- (a) Growing cereals, grasses and field roots, by Rev. H. Bois and M. F. H. Savoie, professors.
- (b) Dairying and bookkeeping, by Mr. G. Bouchard and the Rev. M. N. Pelletier.
- (c) Fruit-culture and forestry by Rev. P. Levasseur and Mr. A. Letourneau.

Practical demonstrations were given in the laboratory and in the various departments of the farm. There were five lectures every day at which lantern slides were used. The average daily attendance was estimated at 200.

"Semaines Agricoles" of the Provincial Department from the 18th of January to the 16th of April, 1915, under the supervision of M. Al. Gareau, official lecturer.



HORSE-JUDGING DEMONSTRATION AT SHORT COURSE, ST. GABRIEL DE BRANDON, QUE.

There were eight lectures every day, with practical demonstrations in the laboratory and the various departments of the farm. The number of students registered for the courses was 127. Some 30 more, not boarding at the Institute, also attended. Seventy-five applicants had to be refused on account of the lack of room.

*Ste. Anne de la Pocatière.* From the 11th to the 17th of January, 1915. Here the teaching includes three main subjects:

The programme of these short courses was as follows:

- (a) A chemical and physical study of the soil; under-drainage, ploughing, harrowing and rolling of the soil; crop rotations, by Messrs. A. L. Gareau, C.A., Prof. F. N. Savoie, Leo. Brown, Instructor, Rev. H. Bois, and Prof. G. Bouchard.
- (b) Plant botany; growing of cereals; grasses, field-roots; meadows and pastures, industrial plants, by Messrs. A. L. Gareau, F. N. Savoie, Leo. Brown, Rev. H. Bois and Abel Raymond, B.S.A., agriculturist.

- (c) Judging live stock—horse, cow, swine and sheep; dairying and allied industries; by Messrs. Joseph Paquet, A. L. Gareau, P. Lacoursiere and Philippe Rheault.
- (d) Poultry-breeding, bee-keeping, fruit-culture, vegetable gardening, sugarmaking, by Messrs. R. Dumaine, poultry instructor, Luc Dupuis, inspector of apiaries, R. S. Rousseau, H. Cloutier, A. Desilets, J. Magnan, agriculturist and L. J. A. Dupuis.
- (e) Rural economy; agricultural co-operation, cow-testing, by Messrs. A. Desilets, B.S.A., and J. B. Trudel of the Dominion Department of Agriculture.

The lecturers were fully equipped with material for the demonstrations. Living specimens were used for the lectures on live stock judging, castration and killing of poultry. In several places the lectures were illustrated with lantern slides. The average attendance was 600 per parish. Two hundred and thirty-eight certificates were granted at examinations. Twenty-four thousand pamphlets on various agricultural subjects were distributed to the farmers during these courses. Lastly, clubs for

women were organized by the professors at Chicoutimi, Roberval, and Champlain, respectively.

At *Henryville, county of Iberville*, March 9th and 10th, 1915. Courses organized by M. H. Cloutier, district agriculturist. The subjects discussed were the following:—

The co-operative association of seed-grain growers, and the production of cereals, by M. Ls. Lavallee.

Vegetable gardening, by Rev. Father Athanase, O.C.R., professor at Oka, and M. Chs. Peloquin.

The agricultural profession; clover growing; insects and insecticides; plant-diseases and fungicides by Mr. H. Cloutier, B.S.A.

Canning of food products, by Mr. P. Denis.

Practical poultry-breeding and fruit-culture, by A. Desilets, B.S.A.

Veterinary Art, by Dr. J. D. Grothe, M.V.

The attendance was 400 to 500.

The interest taken in this method of agricultural teaching in our province indicates a general awakening of the farming community and augurs extremely well for the future.

#### OKA AGRICULTURAL INSTITUTE

BY JOHN A. PAYEN, SECRETARY

1. Only one series of short courses has been given at the Oka Agricultural Institute from the 11th to the 23rd January. The subjects taught at these courses are given on the previous page. No lecturers were sent outside.

2. The number of students that were accommodated was about 125; from 75 to 80 requests for admission had to be refused on account of lack of accommodation. No women were received at the short course.

3. No new subjects were taught.

4. Practical demonstrations were

given in the orchards and in the poultry yards, and they were well attended. During the evenings lectures were given with the use of lantern slides, in which the visitors were greatly interested.

5. From three years' experience, we cannot see anything that would necessitate a change of program or of methods; next year we will be able to accommodate a larger number of students as we are enlarging our school. We will then consider if it would be advisable to make changes.

## MACDONALD COLLEGE

BY DR. F. C. HARRISON, PRINCIPAL

**R**EGARDING short courses conducted by Macdonald College for the year ending March 31, 1915.

1. The number and kinds of short courses, six were held in the college and twenty-three at outside points in Agriculture and Household Science—each course including a variety of subjects. A special course in agricultural drainage, under the auspices of the Quebec Provincial Department of Agriculture for students

of the various Agricultural Colleges of the province of Quebec, held at the Institute Agricole d'Oka, La Trappe, Que., Ste. Anne de la Pocatière, Que., and Macdonald College—five students from each—to train experts for drainage survey work to be carried on by the provincial Government throughout the province of Quebec.

2. The number in attendance at each course was as follows:—

*At Macdonald College:*

	Men	Women	Total
1914 May 1 to 30—Agricultural Drainage.....	15	....	15
Mar. 23 to Jun. 11—Household Science.....	....	18	18
Sep. 22 to Dec. 19—Household Science.....	....	15	15
1915 Jan. 4 to Mar. 19—Household Science.....	..	27	27
Feb. 8 to Feb. 12—Horticulture.....	28	12	40
Feb. 15 to Mar. 6—Poultry.....	13	9	22

*AT OUTSIDE POINTS:*

1915 Jan. 4—Magog, Que.....	45	....	45
Jan. 5—Ayer's Cliff, Que.....	105	....	105
Jan. 6—Coaticook, Que.....	95	21	116
Jan. 7—Marbleton, Que.....	76	60	136
Jan. 8—Sawyerville, Que.....	115	190	305
Jan. 9—Scotstown, Que.....	70	52	122
Jan. 11—Hemmingford, Que.....	166	104	270
Jan. 12—Athelstan, Que.....	71	....	71
Jan. 13—Kensington, Que.....	102	....	102
Jan. 14—Danville, Que.....	112	....	112
Jan. 15—Richmond, Que.....	108	....	108
Jan. 16—South Durham, Que.....	150	....	150
Jan. 4—Knowlton, Que.....	57	60	117
Jan. 5—West Shefford, Que.....	120	75	195
Jan. 6—Bedford, Que.....	102	....	102
Jan. 7—Waterville, Que.....	91	....	91
Jan. 8—Lennoxville, Que.....	168	87	255
Jan. 12—Chapeau, Que.....	400	....	400
Jan. 13—Calumet, Que.....	61	..	61
Jan. 13—Dunraven, Que.....	62	....	62
Jan. 14—Bristol Corners, Que.....	126	....	126
Jan. 15—Breckenridge, Que.....	125	26	151
Mar. 1-6—Cookshire, Que.....	12	..	12

Total.....	2595	756	3351
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3. No new subjects were taken up. The College advertised and was prepared to give a short course in dress-making and needlework to farmers' daughters, to extend from January 4th to March 19th, but the number of candidates for admission did not warrant the course being proceeded

with. Another attempt to introduce this course will probably be made next session.

4. These varied according to the departments offering the courses. The horticultural department exhibited material, photographs, lantern slides, spraying implements,

etc., the cereal department found lantern slides most interesting as they could not take material with them; household science found that more lantern slides should be given.

5. The policy for the period covered has been to reach the farmers through meetings at a number of the smaller centres of the province. The policy for the next session has not yet been determined. The courses have impressed their value on the members of our staff conducting them as they realize from their contact with

the various farming communities exactly what their needs are. It also has given some of the people a better understanding of the work sought to be accomplished by the college.

In addition to the foregoing, Macdonald College demonstrators regularly give instruction in elementary agriculture at some of the rural academies of the province, and organize and take part in meetings of farmers' clubs, etc.

## ONTARIO

BY W. BERT ROADHOUSE, DEPUTY MINISTER OF AGRICULTURE

**S**HORT courses have become firmly established in this province as being one of the most useful and effective means of disseminating valuable information on agriculture and domestic science. This is no doubt due to the fact that as they have been carried on here they appeal both to the eye and to the ear and the actual demonstration of the method serves to emphasize and impress the explanation of the theory. Accordingly a large number of these courses have been held during the past Federal fiscal year taking in all branches of the subject.

Dividing the courses in accordance with their length, I may say that ninety-six short courses extending for a longer period than four days have been held in agriculture and domestic science and have attracted a total of 3,081, while 77 courses of less than four days' duration have attracted a total attendance of something in the neighbourhood of 23,000. With the exception of the courses in domestic science herein referred to, the attendance has been practically entirely of men.

### REACHING THE YOUNG MEN

Probably the most important

series of short courses held by this Department during the past few months has been the series held under the direction of the district representatives. Details show that 43 courses have been held in 40 counties and districts with an attendance of 1,114 students.

This series of courses in agriculture, I regard as one of the most important under the Department because they reach out to the young men on the farm who have not had the time, or who have thought that they did not have the time, to take up any special agricultural studies. Their duration has been from four to six weeks, five or six days a week being devoted to the work both morning and afternoon, and occasionally in the evening. The age of the students would range from about sixteen to twenty-six. The course outlined by the district representative includes every branch of agriculture, and students are given a miniature agricultural college drilling. Not only is there instruction in all agricultural subjects, but there is also included instruction in English and in public speaking, the latter in many cases being particularly emphasized. Afternoons are frequently spent in visiting nearby



farms where splendid stock is available for demonstration purposes, while of course the classrooms are equipped with demonstration materials as far as that is possible. The district representative or his assistant, one or both of whom are graduates of the College, are responsible for the instruction, but during the past season they have been assisted by men prominent in various branches who took up the subjects with which they were familiar. Some ten or twelve prominent men were secured and an itinerary mapped out, so that they went from one course to another. In this way the boys were able to secure the advantage of the experience of men who had made a distinguished success in horse breeding, cattle breeding, poultry raising, bee-keeping or some other branch of many-sided agriculture.

These courses in many instances have been held in conjunction with the High School or Collegiate Institute. Frequently accommodation has been secured in the High School building. There has, however, been no arbitrary rule in this connection. When the district representatives were first established they held courses in the towns in which they were located. It has since been found desirable to hold the courses at different points in the county so as to give the boys in all sections an opportunity to attend the class at the minimum of inconvenience. It will be readily understood that most of the students are drawn from nearby farms so that they can go home night and morning. A few come from a greater distance and board in the town. The plan of changing the course from place to place has worked splendidly, and in doing this it has sometimes been found desirable to hold it in a small centre where there is no High School building available. In some cases the Town Hall is rented and fixed up. One of the most successful courses held the past

season was at a four corners in a rural district even away from the railways. It attracted an attendance of almost one hundred for the term and emphasized the wisdom of getting away from larger centres.

The course generally concludes with a banquet or a public speaking contest. In the case of those who are sufficiently near Toronto, an excursion is run to the city and a visit made to the office of the Minister of Agriculture, to the stock yards, abattoirs, fertilizer factories and other places of agricultural interest. The best evidence of the success and usefulness of these courses is the enthusiasm of the young men themselves while they are in progress; in fact in one case where the course had been arranged for a four-week period, they unanimously petitioned to have it continue for six weeks.

Not infrequently the students who have taken these short courses decide that they would like to go further and enter the College at Guelph. Hence, because they deal with the young men at a formative period in life, I think they must be considered one of the most influential agencies in the diffusion of agricultural instruction.

#### SHORT COURSES AT THE ONTARIO AGRICULTURAL COLLEGE

Short courses have been held at the Ontario Agricultural College during the early months of the year for many years past, and in spite of the number of courses which have grown up all over the country since that time, the College still continues to attract practically to its maximum accommodation, as the following statement will show:

Stock and Seed Judging (all men) . . . . .	192
Fruit Growing and Apple Packing (52 men and 4 women) . . . . .	56
Poultry Course (26 men and 7 women) . . . . .	33
Dairying (53 men and 1 woman) . . . . .	54
Apiculture (31 men and 8 women) . . . . .	39
Cow Testing (all men) . . . . .	43
Ice Cream Course (all men) . . . . .	14

Dairy Instructors' Course (all men)...	10
Domestic Science (Macdonald Institute):	
April to June, 1914.....	21
September to December, 1914.....	23
January to March, 1915.....	24
Optional students.....	13
Normal Teacher's Course (1 man and 21 women).....	22
Summer Course for High School Science Teachers:	
First Year (12 men and 3 women)...	15
Second Year (all men).....	13
Summer Course for Rural Teachers:	
First Year (10 men and 53 women)...	63
Second Year (5 men and 27 women)...	32
Total.....	667

## DOMESTIC SCIENCE THROUGH WOMEN'S INSTITUTES

During the past two or three years courses in domestic science have been introduced through the Women's Institutes, and have proven most popular. During the past year 39 of these courses were held and attracted an attendance of 1,300. The aim is to give a systematic course in food values and cooking, sewing, and home nursing. The courses range from two to four weeks, instruction being given every day



STOCK-JUDGING SHORT COURSE IN ONTARIO

These courses are held in the regular classrooms, and are conducted by the faculty of the college assisted occasionally by someone from outside. They range in length from two weeks to three months, being for the most part from two to three weeks. No fee is charged and the only expense is for travelling, and for board.

It will be noticed that the above includes the short courses in domestic science given at Macdonald Institute. Of these there are three per year of three months each, and they are very popular, there being always a considerable waiting list.

for four or five days a week. At one of the courses a class of girls was taken in the morning and a class of girls and women in the afternoon. Some attention is frequently devoted to dairy work and poultry matters which are also of great interest to the ladies. The manner in which these courses have developed, and in fact the success which has attended any effort taken hold of by the Women's Institutes, indicates very strongly that there is a great future for the development of work along these lines in the province.

## COURSES LESS THAN FOUR DAYS

The most largely attended courses are naturally the shorter ones. Short courses in live stock and seed judging have been held for quite a few years past. During the past year there were 72 of these courses, comprising two or three sessions per day, averaging an attendance of about 300. These courses are held under the Institutes Branch and generally continue for two days. Seed selection and judging is usually considered at the morning sessions, while stock judging is taken up in the afternoon. Types of the animals being demonstrated are secured in the neighbourhood, and brought into the ring and a number of those in attendance are asked to do the judging and give their reasons so as to evoke a lively discussion and thereby impress the points on the minds of the gathering. Occasionally in the evening a meeting is held of a somewhat general nature at which the interests of agriculture are discussed from various standpoints.

During the past winter a new series of courses was held by the Vegetable Specialist connected with the Department, whose work comes exclusively under THE AGRICULTURAL INSTRUCTION ACT. Vegetable Growers' conferences were held at Kingston, Sarnia, London and Lambton Mills with a total attendance of 567, practically all men. These conferences were called with a view to having vegetable growers discuss their problems and exchange experiences. At each gathering addresses were given not only by the vegetable specialist, but by those who have made a distinct success in

some particular branch of vegetable growing. The success of these conferences has proven much beyond expectations and fully justifies enlarging work of this nature another year.

Mention should be made of the short courses in connection with the fruit industry. Except for Box Packing Schools, which continue for a week or more during the winter months, these demonstrations come more under the head of demonstration orchards and demonstrations in individual branches of work, such as pruning, spraying, which are given for only one day at a time.

One other short course may be mentioned, and that is the course held for expert judges. The Department sends out upwards of 300 judges each year to judge in the field crop competitions, and in the various classes at the fall fairs, especially live stock. In order to secure as great a uniformity of standard as possible, it was thought desirable to hold a short course for these judges, and consequently those in Western Ontario meet at the Agricultural College at Guelph for two days early in July, and those from the eastern section of the province meet at the Central Experimental Farm at Ottawa. At both these institutions they are given practical addresses and demonstrations, so that they may fix in their mind the standard for which to look when they are judging a field of oats or barley, or when they go into the ring and endeavour to size up any of the various classes of live stock. The courses have undoubtedly been instrumental in securing a better class of judges.

## SPRING AND SUMMER COURSES

CONDUCTED BY THE ONTARIO DEPARTMENT OF EDUCATION

THREE spring courses and seventeen summer courses were conducted by the

Ontario Department of Education, in 1914. The courses in Agriculture and Horticulture were held



at the Ontario Agricultural College, Guelph. The courses in Household Science, Manual Training, Vocal Music, Commercial Work and for admission to the Normal Schools, and the Faculties of Education were held at the University of Toronto. The courses in Art were held at the Ontario College of Art, Toronto. The courses in Physical Culture were held at London, Ottawa and Toronto.

The courses in the Summer Model Schools were held at Bracebridge, Gore Bay, Port Arthur and Sharbot Lake Public Schools, and in Water St. Convent, Ottawa, and in Sturgeon Falls Separate School.

The kinds of courses and the number of men and women in attendance at each course were as follows:—

<i>Spring:</i>	<i>Men</i>	<i>Women</i>
Elementary Household Science.....	0	13
Elementary Agricultural and Horticultural.....	2	20
Elementary Art.....	3	12
<i>Summer:</i>		
Agriculture and Horticulture (Elem.).....	16	79
Agriculture and Horticulture (Intermediate).....	26	4
Vocal Music (Elementary).....	14	17
Supervisor Vocal Music.....	4	21
Elementary Household Science.....	0	43
Elementary Manual Training.....	4	1
Elementary Art.....	12	76
Supervisors, Art.....	2	22
Specialists, Art.....	6	13
Elementary, Physical Culture.....	59	27
Supervisors, Physical Culture.....	17	7
Specialists, Physical Culture.....	30	5
Commercial Specialists.....	9	8
Normal Entrance (A. & B.).....	8	35
Faculty Entrance.....	29	56
<i>Summer Model:</i>		
Six Schools.....	28	332

In the case of the Commercial examination twenty-nine men and twenty-five women wrote on the final examination.

## MANITOBA

BY H. J. MOORHOUSE, ASSISTANT DEPUTY MINISTER OF AGRICULTURE

AS an important feature of agricultural instruction short courses are long in results. It has been our experience in Manitoba that practical instruction and demonstrations in agriculture and in home economics are everywhere appreciated; that short intensive courses are more popular and better attended than the individual address; and that there is no difficulty in getting the people to attend courses which are of a practical nature, and which are presented in a

systematic and interesting manner. In fact, so tangible have been the results in the past and so widespread has been the conversational advertising by those who have attended, that the Manitoba Agricultural College short course has achieved standard reputation. The announcement of a short course in any subject is now a signal for a very prompt and satisfactory response from all over the province among those most interested in that subject, and in some cases the matter of



accommodation and duplication of classes have become factors in short course planning.

This highly satisfactory state of affairs is the outcome of efficiency in staff, in equipment and in executive application. Particularly in the extension service section of the college the results afield have been noticeable and the energetic efforts to carry instruction and demonstration to far-flung localities have uncovered eager appreciation among the people.

held in both "Gas and Steam Engineering." In March also a short course and convention in "Highway Construction" lasted three days. During the month of February a creamery course and dairy convention proved very successful, as did also the short course for weed inspectors, held under the direction of the Departments of Botany and of Field Husbandry. The night school in "Poultry Keeping" during November and December,



SHORT COURSE CLASS IN TRACTION ENGINEERING

#### AT THE MANITOBA AGRICULTURAL COLLEGE

Among the many successful short courses which have characterized the year's work at the Manitoba Agricultural College may be mentioned a three weeks' course in "Steam Traction Engineering" and a three weeks' course in "Gas Traction Engineering", both held last June. Again in November and March three weeks' courses were

and part of January, was another satisfactory feature.

The extension service section of the Manitoba Agricultural College conducted four separate short courses in twenty different places, a one-week course in "Gas and Steam Engineering" in one centre, six two-day courses in "Home Economics" at five different places on each of six railway lines, and a highly successful three weeks' short course

in "Dressmaking and Millinery" in the district surrounding Portage la Prairie.

#### ATTENDANCE

As already stated, the attendance at all short courses in Manitoba has been growing rapidly. Owing to present unsettled conditions there was a falling off in the attendance of the engineering short courses, the enrollment for these courses being seventy-eight men—a class of men usually which the college could not reach in any other way. Over one hundred representatives of Manitoba municipalities attended the short course and convention in "Highway Construction," while many others interested in good roads also took advantage of the opportunity presented. The creamery course and dairy convention brought out a complete gathering of the creamery men of the province as well as many representative farmers, while the weed inspectors of the province flocked to the short course particularly provided for them. The night school in "Poultry Keeping" showed an enrolment of seventy-one, representing about fifteen different vocations. Most of these students came out from Winnipeg two nights each week, and a majority of them were keeping poultry in their back yards in the city, although a few had farms of their own and intended raising poultry on a fairly large scale.

In the rural districts about one thousand men and fifteen hundred women were each present at from four to eight lectures, and over one thousand boys and girls attended from two to four demonstrations in the four short courses held at twenty different points. The average attendance at each meeting of the week's course in "Gas and Steam Engineering" was twenty-two. The number of women present at the "Home Economics" two-day courses averaged thirty; a total of 720 attended two lectures. The three weeks' short course in "Dressmaking

and Millinery" brought out ninety women at the initial session, the attendance increasing to 150 before the end of the first week. It was found necessary to hold morning, afternoon and evening classes.

#### A SUCCESSFUL INNOVATION

Possibly the most successful innovation tried out by the extension service section was the three weeks' short course in "Dressmaking and Millinery," organized in the Portage la Prairie district. The large rural municipal hall was put at the disposal of the ladies and several sewing-machines secured. Among the outstanding features of the course were the following:

1. The women, with suggestions and slight help from the teachers, did all the work themselves and accomplished a great deal more than if they had lacked this special direction.
2. The pleasure of meeting the other women from within a wide radius and of spending several days working together was so evident that it was proposed to make it an annual event.
3. From an economic standpoint the idea was sound. The Department of Agriculture in making possible this course for the women of the farming community accomplished what it would have been impossible for the women alone to have managed, even under the most favourable co-operative methods, because they lived at such a distance from each other.
4. It was proved beyond question that work of a practical and useful nature is fully appreciated by the women of Manitoba.

#### SEVERAL METHODS TESTED—THE UNIT SYSTEM

Through the co-operation of the Department of Agriculture, the staff of the Manitoba Agricultural College and the Department of Education, the extension service section of the college has been enabled to test the efficiency of several methods of taking college instruction to the rural districts. In presenting the short courses an effort has been

made to organize the work on the unit system which has proved so effective in industrial evening courses and a considerable advantage in the regular courses given at the Agricultural College. To this end the main subjects of instruction—such as “Animal and Field Husbandry,” “Cooking and Sewing”—were divided each into a number of distinct units, each unit complete in itself but so related as to constitute a definite course.

As a direct result those attending the courses derived full benefit from the third or fourth demonstration, even though they had been unable to attend the first or second lecture. Those who attended all the lectures gained a comprehensive knowledge of one distinct part of the subject under consideration—a knowledge which will stand them in good stead the following year when short courses are conducted in the same locality upon another phase of the same subject.

The most popular method of procedure was to take five towns on the same line of railway and visit each place on successive days for four consecutive weeks. In the afternoon separate demonstrations were given for men and women. In the evening the addresses given were of general interest to all. At the latter meetings stereopticon views were used to advantage.

In one series animal husbandry and cooking demonstrations were given first place, while the major subjects in a different part of the province were field husbandry and dressmaking. Each week the regular lecturers were assisted by a specialist on such subjects as poultry or farm mechanics, gardening, home nursing or millinery.

The plan above outlined proved practical in actual operation and met with the approval of those attending. Four courses were handled in this way, possibly the most striking feature being the

interest and enthusiasm manifested. The questions asked indicated that new methods were being discovered and fresh practices introduced into every branch of the farming industry. Many excellent suggestions came from the men and women present at the meetings.

In addition to these lectures the co-operation of the Department of Education made it possible to have several demonstrations among the senior pupils in the schools. Here again the interest taken in the demonstrations by the boys and girls fully justified the experiment.

#### HOME ECONOMICS

Similarly in connection with the home economics work the senior pupils in the public schools were given lessons on some phase of housekeeping, these taking place in the forenoon and the women's meeting in the afternoon. During March three courses were given where the home economics demonstrator visited the same place twice during the same week.

A number of experiments are being tried out in conjunction with the Department of Education to encourage the teaching of domestic science in the public schools, special attention being paid to the noon hour.

In addition to the short course about fifty individual addresses were given at different places throughout the province in response to requests from such organizations as agricultural societies, literary societies, grain growers, home economics societies and school trustees' associations.

Mr. S. T. Newton, Superintendent of Extension Service at the Manitoba Agricultural College, has many plans and new ideas yet to carry out. It is safe to predict that under his energetic and able supervision the extension work in Manitoba will soon out-distance the splendid record already achieved.



## PRACTICAL POULTRY INSTRUCTION

The success of the course in "Poultry Keeping", held at the Agricultural College two nights each week for nearly three months, was due largely to the methods of teaching which were followed. Professor M. C. Herner, of the Poultry Department at the College, has always maintained that the best method of teaching is by showing how, rather than by telling how, and he adhered to this with very satisfactory results in connection with this night school in "Poultry Keeping."

In taking up the question of feeding, killing and dressing poultry for market, he had the students do the actual work immediately after the lecture and demonstration. The lecture on the study of feeds was followed by laboratory comparisons of the different classes of poultry feeds. Similarly the practical judging of poultry breeds by the students succeeded the lecture on breeds and breeding. And so on throughout. The success of poultry work depending largely upon attention to details, the value of practical demonstration in poultry short courses is self-evident.

## CREAMERY COURSE DEMONSTRATIONS

The new dairy building at the Manitoba Agricultural College is strictly up-to-date in its equipment and, therefore, proved an ideal place for the conduct of a special creamery course. Here also the practical demonstration plan was carried out thoroughly, the course proving so interesting and profitable that at the close, those in attendance presented President Black and Professor W. J. Mitchell and staff with an address, expressing their appreciation of the thorough and practical nature of the course given them. They also hoped to have a similar opportunity afforded them another year.

In addition to dairy lectures and discussions and lectures on "Creamery Management," the short course

included cream separators, butter-making, milk-testing, cow-testing, dairy bacteriology and dairy chemistry. This meant that those taking the course separated milk under varying conditions, and compared the different makes of separators in regard to relative merits and efficiency; that they prepared and used cultures or "starters", in butter-making, and studied their use; pasteurized cream, made and packed butter and compared the results from the use of pasteurized and unpasteurized cream, etc., besides using modern cream ripeners and different types of combined churns; that they graded and scored cream and butter; that they tested milk and cream, prepared and tested composite samples, detected adulterations and used the acidimeter and the moisture and salt tests; that they learned the method of cow-testing and experimented in the laboratory with bacteria and chemicals. In short, each individual student performed his own tests throughout, and, instead of any important point passing in one ear and out the other, it lodged in his head where it belonged.

## TRACTION ENGINEERING COURSES

Those who operate ploughing and threshing outfits find that the "Traction Engineering" courses, specially planned by Professor L. J. Smith and his staff, are of the greatest assistance to them. In addition to practical talks and demonstration on the tractors and their accessories, all important related work is thoroughly taken up, such as babbitting, soldering, flue work, pipe-fitting, etc. A part of each day is also spent in the College blacksmith shop, forging, welding and tempering. Talks are given on the construction, care and operation of the separator, etc.

The men who enter for these short courses are possessed of mechanical ability, so that they make



very rapid progress under Professor Smith's popular and painstaking methods of instruction, while the College mechanical equipment, including every make of tractor, makes the courses very complete.

#### TIMELY DATES FOR CONVENTIONS

There is one phase of the short course which deserves mention particularly, and that is the opportunity which is presented of holding conventions or annual meetings of associations closely related to the subject taken up in the short course. By arranging the dates of such meetings to conform to the short course schedule a pronounced impetus is gained all around, many delegates taking the opportunity of enrolling for the short course and much profitable discussion being aroused.

The "Good Roads" short course and convention in "Highway Construction," held at the Manitoba Agricultural College, March 3rd to 5th, is a case in point. It was the first series of meetings of the kind ever held in Western Canada. The hundred representatives from the municipalities of the province who met daily at the Manitoba Agricultural College, along with many others interested in the Good Roads movement, naturally found much to interest them in a practical way.

Among the many valuable papers presented and discussed it is necessary only to mention the following: "Legal Interpretation of the Good Roads' Act," by E. M. Wood, Deputy Municipal Commissioner for Manitoba; "Road Drainage," by Professor W. J. Gilmore, Assistant Professor of Agricultural Engineering at the Manitoba Agricultural College; (a discussion followed led by A. McGillivray, Manitoba Provincial Highway Commissioner); "Development of Good Roads" by Professor Agg, of the Iowa State College; "Road Materials" by W. F. Tallman, Winnipeg Street

Commissioner; "Building and Maintenance of Earth Roads," by J. H. Mullen, Minnesota Deputy State Engineer; "Cost of Hauling Over Various Types of Roads," by Professor L. J. Smith, of the Manitoba Agricultural College; "Hard Surfacing of Roads" by P. P. Sharples, Road Expert, New York City.

"Gravel Roads", "Financing Road Work", "Macadam Roads", "The Low Cost Road", "Use of the Road Drag in Maintaining Earth Roads," etc., were other subjects discussed, the latter paper being read by S. R. Henderson, President of the Manitoba Good Roads' Association.

The annual meeting of the Manitoba Dairy Association, held at the college during the time of the creamery short course, provided another example of timeliness. The Department of Agriculture defrayed the transportation expenses of delegates from the different creameries of the province in order that none might be missing and the gathering was very representative. One pleasing feature of the convention was the unanimous expression of appreciation of the advantages to be derived from the grading of cream at the creameries, and paying for the same on a quality basis, as well as the advantages of grading creamery butter by the provincial produce grader. Approval of a continuation of this system in connection with the creamery work and the thorough instruction being given the creamery inspectors was voiced heartily.

#### MANY MEETINGS PLANNED

During the coming summer it is intended to hold a large number of women's meetings in different parts of the province, when demonstrations in "Cookery", "Dressmaking and Millinery" will be given. Home economics societies will also be organized where possible. During the past three months thirty new societies have been organized and

it is expected that as many more will be established during the summer.

With these organizations in active operation a larger number of women can be interested in the short courses, and even more effective work done than that which has been

accomplished already. Judging by the attendance and the interest manifested on all sides it would seem that Manitoba's present methods of short course instruction are meeting with uniform success.

## SASKATCHEWAN

BY A. H. BALL, DEPUTY MINISTER OF EDUCATION

THE following is an outline of the short courses held in Saskatchewan during the year beginning March 31, 1914 and ending March 31, 1915.

### 1. At the University—Courses of four days or less:

(a) Homemakers' Convention, held last week in May, 1914. One hundred and twenty-four in attendance. Topics relating to the home, school and neighbourhood were studied and demonstrations in cooking were given.

(b) Agricultural Societies' Convention, January, 1915, 139 delegates in attendance. Besides discussions on agricultural society work proper, lectures were given on tillage methods, seed selection, live stock selection and breeding, feeding and management; and demonstrations on the selection and judging of cattle, sheep, horses, swine and poultry.

(c) Dairymen's Convention delegates, January, 1915. Ninety-five in attendance. Demonstrations on the selection and judging of dairy cattle; lectures on methods of improving dairy herds and lectures on staple forage crops for dairy cattle in Saskatchewan, and how to produce the same.

### COURSES OF MORE THAN FOUR DAYS

(a) *Domestic Science* for young women from the farms. Three weeks in June, 1914. Twenty-one in attendance.

(b) *Engineering* for young men wishing to learn to operate internal

combustion engines. Three weeks in June, 1914, seven in attendance.

(c) *Farmers' Course*. Five days in January, 1915. One hundred and fifty-two in attendance. The topics discussed were tillage, seed, best methods for preparing and managing the summer-fallow, preparation of the stubble land for crops, preparation of prairie land for crops, demonstration on the selecting, judging, breeding and marketing of farm animals, horses, cattle, sheep, swine and poultry; lectures and demonstrations on farm machinery.

### 2. At Outside Schools and Colleges:

(a) Regina College, for young men from the farms taking the winter course there. The College of Agriculture sent four professors to lecture and demonstrate on tillage, crops, implements and live stock, including poultry. Fifty students and 47 farmers were registered for this course.

(b) Regina Normal School, for the teachers a similar course of lectures was put on for five days. One hundred and thirty-four in attendance.

(c) Moose Jaw College, for young men from the farms taking the winter short course there—85 students and 12 farmers registered; a similar course was given to that given at the Regina College.

(d) Saskatoon Normal School, a similar course was given. One hundred and ninety-eight were registered.

3. *Courses of two to four days at outside points:*

These courses were for men and women and, where possible, the school children of the higher grades. Lectures and demonstrations by means of charts and lantern slides on tillage, crops and animals—at the following places:—

	Attendance,	
	Men	Women
Punnichy.....	52	...
Nokomis.....	105	55
Zealandia.....	155	55
Glenside.....	125	...
Broderick.....	35	...
Luseland.....	196	50
Hanley.....	58	57
Grenfell.....	96	175
Windthorst.....	99	...
Qu'Appelle.....	148	86
Creelman.....	79	50
Arcola.....	192	55
Redvers.....	106	46
Carnduff.....	91	150

Alameda.....	174	65
Weyburn.....	96	...
Davidson.....	...	150

At nearly every point much interest was manifested. The subjects discussed at these meetings were those that were asked for by the people themselves. The attendance was good at all sessions and equal interest seemed to be taken in all the subjects discussed. No new subjects were introduced, except now and then that of school gardening.

Short courses were asked for at a number of other places, but owing to the lack of qualified men and women for the work we were unable to accede to the requests. Besides the short courses named above, we held over thirty one and two day meetings during the fall in connection with seed grain fairs.

## THE SPRING CONDITION OF ALFALFA

### NOVA SCOTIA

BY JOHN M. TRUEMAN, PROFESSOR OF AGRICULTURE AND FARM SUPERINTENDENT  
AGRICULTURAL COLLEGE, TRURO

THE Alfalfa in this province has come through the winter in splendid condition. We had some sown broad-cast and some in rows on land which had been treated with eight tons to the acre of ground

limestone. This was sown in July 1914. I think every plant in both lots lived through the winter and is growing vigorously this spring. Clover and Alfalfa wintered exceptionally well in this locality.

### MACDONALD COLLEGE

JAMES MURRAY, B.S.A., PROFESSOR OF CEREAL HUSBANDRY

THE winter temperatures of 1914-15 in Western Quebec have been slightly above normal. November and December were somewhat colder than normal with from 8 to 18 inches of snow on the ground. January and February were remarkable for the sudden and extreme changes in temperature and the large amount of precipitation in the form of rain. March temperature

was above normal with no extremes. April was unusually warm; growth started very early, and all perennial crops were as far advanced at the end of the month as they frequently are by the 20th of May.

In the various alfalfa experiments at Macdonald College the winter has not added much to our knowledge of hardiness in varieties but it has clearly demonstrated that a covering

of ice is much more destructive than extreme cold.

The weather experienced in January and February—alternate freezing and thawing with occasional heavy rains—resulted in all the depressions in the fields becoming covered with solid ice. They remained in this condition until April. Throughout the winter, notes were made from time to time on the extent of the ice, in order to be able to ascribe to its proper cause, any winter killing that should occur. After two weeks of growth the ice areas were as clearly defined as they were in March, marked as they were by an almost total absence of living plants.

A few strains have suffered rather less than others, but even these are thinned out to such an extent and the plants remaining are so attenuated in vitality, that, from a practical viewpoint, the remaining stand would be considered worthless. From a breeding standpoint it has more value as it clearly indicates that some strains are better able to withstand a heavy covering of ice than others, and are thus more valuable for foundation stock of improved varieties.

It is worthy of note that Quebec No. 1 alfalfa, a variety described in the April number of Vol. 1 of THE AGRICULTURAL GAZETTE, has withstood the effect of the ice better than

any of those of the ordinary type. Planted out last year in the lowest part of the field, where the ice afforded good skating for six weeks during the winter, fully fifty per cent of the plants are alive and thrifty, apparently little the worse of the ice covering. As this variety is primarily adapted to pasture purposes this ability to withstand adverse conditions is of particular value.

The field blocks of alfalfa suffered in the same way as the ranges devoted to breeding work. All pockets in the fields where the water gathered and froze, are practically bare of living plants. In one field too, across which careless teamsters drove for a few days in the winter, there is a strip killed the width of the road. Other fields of Grimm alfalfa, where there were no depressions and the water drained off rapidly and no ice formed, have come through in perfect condition and were, at the end of April, nearly a foot high.

The winter's experience emphasizes the importance not only of having alfalfa growing on land with good underdrainage, either natural or artificial, but also of having it on fields where surface water can drain off rapidly in the winter season.

Had it not been for imperfect surface drainage all our stands of the hardy strains of alfalfa would apparently have wintered perfectly.

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### ONTARIO AGRICULTURAL COLLEGE

BY C. A. ZAVITZ, B.S.A., PROFESSOR OF FIELD HUSBANDRY

THE spring of 1915 opened in Ontario a little earlier than the average. The usual date for starting the seeding of grain crops at the College is about the middle of April. This year the seeding of the spring wheats and the barleys was completed by April 9th. There was not much appearance of alfalfa growth at that time. On the 19th

of April, however, the alfalfas were making a splendid growth, and any dead plants were quite noticeable. In examining the different varieties under experiment at the college it has been found that all kinds have come through the winter much better than usual. There has been practically no heaving of the plants, and in the hardy varieties it is rather an ex-



ception to find a dead specimen. In some of the tender strains, however, the influence of the winter is somewhat more evident. In one set of alfalfas comprising seventy-one varieties and strains, which have been under experiment for the past six years, the results are very interesting. The hardy strains have come through the last six winters remarkably well, and the tender ones have been badly winter killed. In the average results of percentage of living plants at the present time, we have the following record from seed obtained from different sources: Colorado and Utah, about 6 per cent; Kansas, about 15 per cent; Montana, about 21 per cent; and the common variety of Ontario, about 35 per cent. Under similar conditions the Ontario Variegated and the Grimm each have about 80, and even as high as 90 per cent of living plants. There is a very great difference in the different varieties and the different strains of alfalfa. The Grimm and the Ontario Variegated are both giving satisfactory results.

Not only is it important to have hardy varieties, but it is also important to select land having a clean, mellow, fertile surface soil overlaying a deeply drained, sweet subsoil. It is important to use large, plump seed of strong germinating power. If alfalfa has not been grown successfully on the land the seed should be inoculated with the proper kind of bacteria. For the production of hay twenty pounds of seed per acre is usually recommended for average conditions, although under certain circumstances this quantity might be varied somewhat. From results of experiments at the Ontario Agricul-

tural College we would recommend the seeding according to one of the following methods:

1. Alfalfa seed may be sown on winter wheat in the early spring either on the old snow or on a fresh snow of one or two inches, and no harrowing or cultivation is necessary.

On a suitable seed bed and as soon as the land is sufficiently dry in the spring, alfalfa seed may be sown from the grass seed box placed in front of the tube drill. About one bushel of barley, wheat or rye per acre sown from the tubes of the drill makes a very good nurse crop. After the seed is sown the land should be harrowed lightly.

3. Alfalfa may be sown alone in the month of July on a summer fallow providing there is sufficient moisture for good germination.

Alfalfa should never be pastured during the first year, and seldom, if ever, afterwards, as pasturing very frequently destroys the plants. The crop should be cut for hay or for green fodder in the following year after the seeding takes place, as soon as it starts to bloom. Care should be taken to retain as many of the leaves on the stems as possible, and to protect the crop from rain. In many places in Ontario the alfalfa will produce three crops of hay per annum. The third cutting, however, may be used to advantage for mixing with corn when filling the silo, as this forms an easy method of handling the green alfalfa in the autumn and also of improving the quality of the corn silage. In some localities, hay may be obtained from the first crop, and seed from the second crop in each season, and for a period of several years.

## MANITOBA

BY H. J. MOORHOUSE, ASSISTANT DEPUTY MINISTER OF AGRICULTURE

THE twenty-two alfalfa plots grown under the direction of the Manitoba Department of Agriculture during the past three years were sown on summer-fallowed land, which is the only preparation that we recommend or practice in this province.



ALFALFA AT THE MANITOBA  
AGRICULTURAL COLLEGE

Although not all of these plots have been inspected as yet, enough of them have been examined to justify the statement that in spite of the very limited snowfall in some districts they have come through the winter in good shape. At Baldur, for instance, where there was

scarcely a trace of snow, every plant appears to have wintered safely.

The location of these alfalfa fields vary greatly in altitude and in character of soil; but apparently all of the districts give satisfactory results with alfalfa. The field on the Manitoba Agricultural College Farm in the Red River Valley perhaps is most advanced at this date, a condition no doubt attributable to the



ALFALFA GROWN FOR SEED  
DEMONSTRATION FARM, NEEPAWA, MAN.

low altitude and the sheltered location of the field.

Turkestan was the seed used for



ALFALFA AT THE MANITOBA AGRICULTURAL COLLEGE DEMONSTRATION FARM  
THICK STAND TEN INCHES HIGH IN SEPTEMBER, YEAR OF SEEDING

all of the plots sown for fodder. At Neepawa one seven-acre field was sown for seed purposes with Grimm's and gave a good yield. (See THE AGRICULTURAL GAZETTE, Vol. II, No. 1, January 1915, Page 73).

For fodder purposes we have always practised seeding with a drill

in rows from six to seven inches apart, using fifteen pounds of seed to the acre, and inoculating either the seed or the soil with bacteria. Our work has been more along the line of demonstration than of conducting experiments.

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## SASKATCHEWAN

### COLLEGE OF AGRICULTURE

BY J. BRACKEN, B.S.A., PROFESSOR OF CEREAL HUSBANDRY

THE past winter was one of the mildest we have experienced in this part of the province, but the ground was bare until very late in the fall and the snow went away early in the spring. As far as we can tell at this time, our alfalfas are all alive. Those sown in wide rows have come through better than those sown thickly, while those left with a considerable growth for protection last fall are much more vigorous at the present time than the same varieties that were cut late last summer.

The Siberian varieties—both Falcata and Media—and the various strains of Grimm have come through almost perfectly, but are rather less vigorous than they were a year ago.

The Common or Purple Blossomed sorts, which were sown in rows, have been thinned out to a considerable extent but a fair stand of each still remains.

Three varieties out of four hardy winter wheats are completely gone. About 50 per cent, or rather more of Buffum's No. 17, is alive and vigorous. Our winter rye all came through perfectly, even after adverse conditions for germination last fall, with the exception of the farm crop which was pastured late in the fall. The last mentioned is very thin this spring, the stand is hardly thick enough to leave for a crop.

Our clovers have stood the winter better than in any other year since 1910 and 1911.

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## ALBERTA

BY H. A. CRAIG, B.S.A., DEPUTY MINISTER OF AGRICULTURE

I have just completed an inspection of our alfalfa at the following places: Stony Plain, Olds, Claresholm and Medicine Hat, and find that it never was in better shape at this time of the year. It is a beautiful rich colour standing from four to six inches high and as we have had plenty of moisture in every part of the province, I feel that there should be a splendid stand by the time it is ready to cut.

On the Demonstration Farms we covered all the alfalfa with strawy manure last fall, and early in the spring it was drag-harrowed, and, where the alfalfa was considered too thick, it was disced and afterwards drag-harrowed. This treatment does not seem to have checked the growth materially and there is no question that it has destroyed a good many of the small weeds that have just appeared.



For the last two years all the alfalfa has been sown on the Demonstration Farms in rows thirty inches apart and with about three pounds of seed per acre. The ground has been subsoiled about ten inches deep and manured with well rotted manure the year previous to sowing.

On account of the success which we have had on every Demonstration Farm, we feel reasonably confident that alfalfa can be grown in any part of the province if proper care is taken in every operation in connection with the cultivation."

## BRITISH COLUMBIA

BY W. NEWTON, SOIL AND CROP INSTRUCTOR

THE past winter in British Columbia has been exceedingly favourable for alfalfa. With no exception was there any marked winter-killing on the demonstration plots of the Department of Agriculture, although those plots are situated at points throughout the agricultural districts of the province. Our results would indicate that where a Grimm strain, or equally hardy alfalfa is used, the alfalfa growers in this province need not fear any danger from winter-killing. Our conclusion may not be final for the past winter was exceptionally mild.

The plots at Kamloops and Bridesville show the greatest vigour. This is particularly encouraging for at these points the hot weather of midsummer make it impossible to successfully grow the common clovers. The plots on Vancouver Island and the lower mainland are showing considerable promise,

although not to the same extent as those at the interior points.

Under coast conditions where the alfalfa does not make such a vigorous start, considerable difficulty has been experienced with the weed and grass nuisance. For this reason all future seedings will be done in drills wide enough apart to allow of intertillage.

The experience of the past two years has taught us that in districts where alfalfa is an uncertain or experimental crop, time will be saved by sowing in drills wide enough apart to cultivate between the rows. Weeds and grass are thus almost completely under control. Similarly, in districts where drought-killing is liable to occur, moisture conditions in the soil are more under control. In any case the chances are increased for success, and for demonstration purposes, a plot sown in this manner is very attractive.

With a view to meeting the widespread scarcity of hands, farmers are naturally arranging to economise labour as far as possible, and to use to the best advantage such assistance as they may be able to get. In one district it is stated that some lea-ploughing will be abandoned, grass taking the place of grain, while grain again may be substituted for green crops, and in others it is expected that it will be found necessary to do the spring work in a less thorough manner than usual. It is hoped, however, that, as a result of the full consideration that is now being given to the problem of the labour supply in various responsible quarters, farmers will be able to carry through the work of the season without undue disturbance of their normal practice.

*Board of Agriculture report for Scotland, April, 1915.*



# IMPROVEMENT IN EGG PRODUCTION BY BREEDING

## MACDONALD COLLEGE

BY M. A. JULL, B.S.A., MANAGER AND LECTURER, POULTRY DEPARTMENT

**B**REEDING work for improvement in egg production has been carried on for a number of years by the Poultry Department. A definite pedigree system of selection and breeding, however, has been adopted comparatively recently and to date, no absolute results have been obtained.

The breeds which are being used include: Barred and White Plymouth Rocks, Single Comb Rhode Island Reds, White Wyandottes and White Leghorns. Chief attention has been given to Barred Plymouth Rocks.

The number of birds in each breed being used in this work are: —

Barred Plymouth Rocks.....	500
White Plymouth Rocks.....	10
S.C. Rhode Island Reds.....	50
White Wyandottes.....	50
White Leghorns.....	50

Systematic improvement was undertaken in the spring of 1913. Two Barred Plymouth Rock male birds of known pedigree were used in establishing two line bred strains which became the foundation flocks for subsequent improvement.

## SHOWING METHODS OF MARKING CHICKS

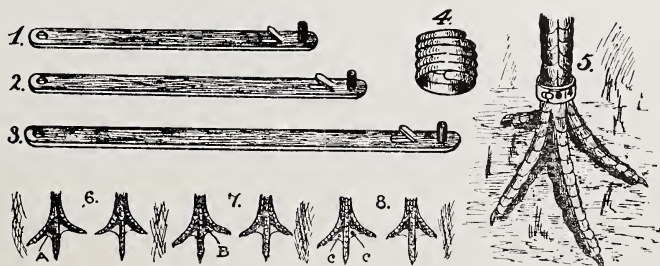
Nos. 1, 2 and 3 show different sizes of leg bands for different sizes of birds.

No. 4 shows a coloured celluloid leg band. Combinations of coloured bands can be used in poultry breeding work. Also these bands can be used to distinguish fowls of various ages.

No. 5 shows a numbered leg band on the leg of a fowl. These bands are used in breeding work.

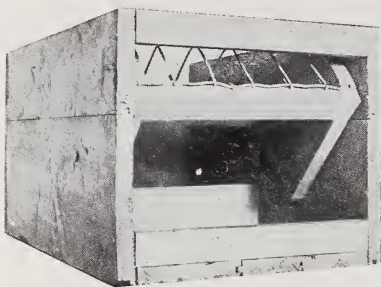
Nos. 6, 7 and 8 show three pairs of chicks' feet, illustrating the various ways in which the webs of the feet are punched. Pair No. 6 is punched in the outer right web at A. Pair No. 7 is punched in the inner right web at B, and pair No. 8 is punched in the outer and inner right webs at C. Sixteen combinations of punches may be used.

Poultry can also be marked very effectively by inserting a band in the wing. This method is permanent, and is one of the most effective methods employed.

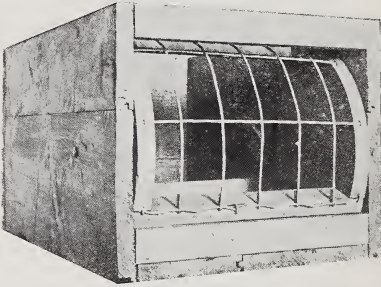


METHODS OF MARKING CHICKENS

TRAP-NEST IN USE ON POULTRY DEPARTMENT, MACDONALD COLLEGE



This is a double compartment nest with a balanced cylindrical door which closes behind the hen as she enters the nest.



This photograph shows the nest closed. The door might be made of finer mesh or of slats.

RECORD CHARTS

The following are the charts used by Macdonald College for keeping records of laying, hatching, mating, etc.:

Macdonald College--Poultry Department--Egg Records.

HOUSE NO.		HATCHED		CHICK BAND NO.		BIRD NO.																										
PEN NO.		VARIETY		BREEDER NO. ORIGINAL NO.		OUT OF MATING																										
DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	TOTALS
NOV																																
DEC																																
JAN																																
FEB																																
MAR																																
APR																																
MAY																																
JUNE																																
JULY																																
AUG																																
SEPT																																
OCT																																

MATING OUT OF WHICH GAME		MATING NO.	BAND NO.	BREEDING HISTORY		NOTES
				YEAR		
MOTHER				MATINGS		
MOTHER'S MOTHER				PEN NO.		
MOTHER'S FATHER				BREEDING INDEX		
FATHER				BODY WEIGHT		
FATHER'S MOTHER						
FATHER'S FATHER						
B BROODY O OVER BROODINESS X BROKEN EGG						
N ON NEST E EGG EATEN						

CHART FOR EGG RECORD

### CHART FOR HATCHING RECORD

### CHART FOR INCUBATOR RECORD





[illegible]

### PEDIGREE CHART

[illegible]

CHART FOR COCKEREL RECORD

## ONTARIO AGRICULTURAL COLLEGE

BY W. R. GRAHAM, B.S.A., PROFESSOR OF POULTRY HUSBANDRY

WORK along this line was started with Barred Plymouth Rocks in the winter of 1907 and 1908. A little attention has been paid to White Wyandottes, Rhode Island Reds, Buff Orpingtons, and in the past two years, work has been started on a moderate scale with White Leghorns. The work done to date on all breeds, except Barred Plymouth Rocks, is not of such a nature to be of any value in assisting a study of the problems of egg production.

Before one gets far in a study of this question there are several other factors that have to be considered very carefully and, moreover, are so closely associated with increased egg yield from a commercial standpoint that one is frequently obliged to put forth special efforts to take care of these factors.

Our experience has been that the following factors should be carefully considered and maintained if one's efforts towards increased egg production are to be of commercial value. These factors are—constitution, hatching power of eggs, living power of chicks, early maturity, and one should consider size and colour of eggs.

Our work to date would indicate that the above factors are inherited, and, if not seriously considered in matings, are liable to give much trouble and unsatisfactory results, and, furthermore, after seven years of breeding, we have gotten to the point of where we think we begin to see how these factors may be at least partially controlled or produced in the following generations; or in other words, we are possibly in a position now to start breeding operations.

During the winters of 1907 and 1908 a small number of high laying hens with trap-nest records were

purchased from two sources, together with a male from each source. The Plymouth Rocks on the poultry plant at this time had been maintained largely as being fair representatives of the breed as seen in the Show Room. No effort in particular had been paid to egg production. The following season a number of pullets were raised from all lines, but the birds were used for house and feeding tests, and as the individual records were not kept, the first year's breeding cannot be given.

The season of 1909 really is the beginning of an effort to breed or egg production. It might be well to state here that these birds of high laying were of such inferior colour and shape that it was almost impossible to realize that they were worth while breeding. The first year's breeding demonstrated that these birds, particularly the offspring from one male were vastly superior over other lines for early maturity, or for market purposes.

During the winter of 1909 and the summer of 1910 there were 68 pullets that completed a year's record, that is that were in trap-nested pans from October 1st, 1909, to October 1st, 1910. The birds were hatched in April and early May. They produced an average of 151 eggs each for the year. No birds of the old line were trap-nested that year.

In the spring of 1910, an effort was made to hatch and rear under the same conditions a number of pullets from one of the old line males, and a pen of the same line females, and also a number of pullets from a bred-to-lay male and the same line of females. We were able in October to put into one house a pen of pullets from each line or male. The results of this year's trap-nesting of

these two pens were that the old line laid an average of 122 eggs each for twenty birds that completed the year, and the bred-to-lay line produced an average of 176 eggs each for eighteen birds that completed the year. This year's results suggested the idea that the male might be an important factor in breeding for egg production.

In 1912 Maine Experiment Station published a paper setting forth a theory as to how egg production was inherited. We then began to check up our back breeding with this theory, and it offered an explanation to many results we had gotten from various matings and suggested a line of breeding operation in earnest. Since then we have been trying to get the males and females rated as to where they stand to put the theory to a practical test as to whether one can produce a line in which all females are good layers, and maintain this line. This work will probably take another five years before we can state definitely one way or the other.

During the season of 1913-14 there were 81 bred-to-lay pullets that were hatched in April and early May, and 12 pullets of the old line similarly hatched and reared, that completed a year's record. The 81 bred-to-

lay pullets averaged 162 eggs each and the old line 127 eggs each.

The results so far would indicate that the males have more ability to transmit laying qualities than the females, especially is this true in regard to winter egg production, and, moreover, to properly test males or females, the chicks should be hatched by May 20th. It is to be understood that proper feeding, housing, rearing, and attention are necessary adjuncts.

In conclusion, our effort at present is one of testing females, mating them to sons of good hens and desirable sires. Only in this way can we see how it will be possible to get a high percentage of sure producers. What we need is a plan to eliminate the twenty-five per cent of average producers now bred.

We have on several occasions bred poor laying hens of the old line to good males, and the resulting offspring in pullets was satisfactory; also a few good laying hens to old line males and the resulting pullets were not any better layers on the average than the old line. We have been able to select at least one male from the old line that was a good average producer of fairly high layers.

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## MANITOBA

BY M. C. HERNER, B.S.A., PROFESSOR OF POULTRY HUSBANDRY

**B**REEDING and selecting for improving egg production was started at the Manitoba Agricultural College only a little over a year ago. Up to that time the equipment for conducting such work was not finished and nothing permanent could be done until all the equipment required for carrying on this work successfully had been installed.

The Poultry Department of this college is but little more than three years old; hence, the data on this

work must necessarily be more limited than that of the older departments of other institutions.

During the past year we trapped the entire flock of 750 hens kept on this plant. These records show great variation in the egg yield of different hens of the same breed. High and low producers were found in all breeds. Some pens were fed at a loss, while others again showed large profits. The highest pen average was given by 20 White Leghorn pullets, which averaged 142 eggs

each in ten months beginning December 1st, 1913, and ending October 1st, 1914. The heaviest individual layer in this pen laid 166 eggs in this period, and the second highest 159. The second highest average was made by 20 White Leghorn pullets, each of which averaged 124 eggs in these ten months. The third highest average of 116 eggs was made by a pen of Barred Plymouth Rocks. A pen of 20 White Leghorns stood fourth highest with an average of 115. Another pen of 20 White Leghorns came fifth with an average of 105 each, and a pen of White Wyandottes stood sixth with an average of 100 each, for the ten months. This trap-nest work was carried on with White Leghorns, Barred Plymouth Rocks, Partridge Rocks, White Wyandottes, Silver Laced Wyandottes, Rhode Island Reds and Buff Orpingtons.

#### STANDARD OF PRODUCTION

The standard of production is set at 100 eggs in ten months, and any hens, which, in their pullet year do not come up to this are weeded out. By following this system, we hope to gradually reduce the percentage of poor layers in the flock.

The work last season was far from satisfactory in that the poultry plant was not completed. The hens had to be confined in the houses until the 17th of September when the yards were completed. This necessarily meant a relatively low egg production, so, therefore, the records as here given are not by any means considered high. With these disadvantages removed this season, we hope to show considerably better records at the end of the year.

Regarding the average egg yield of each breed, we do not consider our records of any value in that the records of some breeds which stand confinement better would naturally be a good deal higher than the others. After all breeds are given the proper

conditions in so far as it is possible, then production must count either for or against a breed.

This year we are again trapping every one of the 900 laying hens and the records in winter egg production of the different breeds are much similar to those of last winter. The White Leghorns again come up high. Out of 425 pullets of this breed, the best 25 gave a 61 per cent egg yield from November 29th, 1914, to February 16th, 1915, a period of 80 days. The entire flock of these 425 pullets gave a 35 per cent yield during February. Judging by this performance, I would say we have made some progress on last season's work; but, at this early date, it is difficult to state, except in a general way, what improvement has been made.

The weather conditions this year were quite favourable for a good winter egg production. January was the coldest month, the temperature inside the poultry house often going below zero, the lowest being 8° below. The other months were favourable for good egg production.

#### METHOD OF SELECTION

In breeding for improvement in egg production, we select male birds from our heaviest layers in the different breeds. These are mated back to the heaviest laying hens and in this way we hope to make a permanent improvement. The record of performance is, however, not the only requisite, as a bird must be strong, healthy and vigorous before we use it in the breeding pen. New blood will be brought in from time to time if required. Shape or type and colour are a secondary consideration. The record of performance, along with vigour and vitality, is the thing that counts for the most.

This season we are selecting the breeders on their record of performance and also on their ability to produce eggs that are fertile and eggs



that will hatch. The percentage of fertility so far has been exceptionally high, the highest point reached being 94 per cent in the White Leghorns in March. We also find that certain individuals lay infertile eggs almost continually, and we endeavour to eliminate these as rapidly as possible, thus bringing up the percentage of fertility. The same thing holds good regarding the

hatching quality of eggs.

These are briefly the lines of work as we are conducting them on this plant at the present time. How much we can enlarge on the present system will depend largely on the results obtained during the next few years. We have simply laid our foundations and are now proceeding to build on the same.

## PRINCE EDWARD ISLAND

### RECENT LEGISLATION

SEVERAL acts regarding land were passed at the recent session of the Island legislature, but only two became law having a direct bearing upon agriculture. One of these was amending "An Act to Incorporate the Prince Edward Island Co-operative Egg and Poultry Association" and the other to incorporate "The Prince Edward Island Co-operative Seed Association." The noteworthy feature is that in these two acts we have further proof not only of the progress of the co-operative movement, but that its onward course is general all over the land. The objects of the Co-operative Seed Association are set out to be the production and marketing of improved strains of high producing stock seed. The incorporators are some of the leading agriculturists of the Island, including the Secretary, Mr. Theodore Ross. It is provided that any farmer may become a member and shareholder. A number of bills were passed relating to the fox-breeding industry and one other measure affecting rural

life. This latter was an act incorporating the Rustico Rural Telephone Company, Limited, which is intended to give dwellers in a large section of the Island running from Rusticoville the advantages and privileges of a telephone service.

#### AGRICULTURAL ESTIMATES

The estimated expenditure for agriculture is as follows:—

Commissioner, part salary.....	\$ 900
"    travelling expenses.....	350
Professor of Agriculture,.....	1,400
Professor of Agriculture, travelling expenses.....	300
Departmental expenses and contingencies.....	1,900
Printing stationery, etc.....	1,000
Exhibitions and live stock judging.....	9,250
Farmers' institutes and educational work.....	1,900
Encouragement of field crops, horticulture.....	3,300
Dairying and poultry raising....	
Vital statistics.....	750
	<hr/>
	\$21,050
Less:—	
Estimated receipts through Department.....	1,600
	<hr/>
	\$19,450

# QUEBEC

## HISTORY OF AGRICULTURAL CLUBS

BY H. H. NAGANT, EDITOR LE JOURNAL D'AGRICULTURE

THE idea of the formation of agricultural clubs in the province originated in 1869 when the first number of the *Semaine Agricole* was published, but several years elapsed before their real influence was felt.

In 1875, a distinguished agriculturist, M. Ed. A. Barnard, Director of Agriculture, noting the lamentable condition of agriculture in the province, recommended agricultural teaching by means of lecturers; he also recommended union and co-operation among the farmers, urging them to meet to study the means by which improvements could be brought about in their own interests. It was at that time that the first agricultural clubs of the province were organized in the parishes of Ste.-Anne de la Pocatière, Chambly, St.-Michel Archange, St.-Jacques l'Achigan, St.-Edouard de Lotbinière, Joliette and various others. As every new organization has to do, they had to fight against a spirit of inertia. The beginnings were difficult and progress was slow until 1881, when impetus was forthcoming from the Roman Catholic clergy, who are invariably found in the first place in any movement for the improvement of the material and moral welfare of the population.

In 1886, the Bishops, meeting in Council at Quebec, blessed the agricultural clubs and recommended their extension. In 1887, the first congress of agricultural clubs, including a thousand persons, was held at Trois-Rivières.

In order to insure the efficiency of the work of the clubs and to make their progress permanent, the

Government thought it advisable to make strict regulations and to afford help by means of subventions. This was in 1893, the Department of Agriculture giving to the clubs an official organization, which, with the exception of a few minor changes, is still operating with complete success.

The first annual convention of the agricultural clubs, placed under the official jurisdiction of the Government of Quebec, and which numbered 425 at that time, was held in 1894 at St.-Hyacinthe. To-day there are 689 agricultural clubs in the province with 65,324 members.

### CONSTITUTION OF THE CLUBS

Although the agricultural clubs and the agricultural societies work towards the same object, viz., to promote agricultural progress in all the branches of farm management, the two organizations differ in their field of action and also in some of their duties. The agricultural clubs are established in each parish or township and include only a limited number of farmers, whilst an agricultural society takes in a whole county. To become a member of the club, one has to pay an annual fee of \$1, but members can subscribe a higher amount if they like.

Each club is entitled to an annual subvention, not exceeding 50 cents per member, and the total grant to any club must not exceed \$50, or be under \$25. No subvention is granted to a club unless \$30 has been subscribed and paid to the treasurer by at least twenty-five members. In addition to this regular subvention, the Department of

Agriculture also grants additional subventions as follows, to encourage the use of registered animals of good quality for breeding purposes:

For one or several bulls kept for breeding for at least 9 months.....	\$50
For one or several boars.....	15
For one or several rams.....	15

The receipts of the club are derived from members, fees, government grants and revenue from the use of breeding animals, and of agricultural machinery, etc. These receipts are spent in prizes for various competitions: farm crops, good farms, ploughing, gardening, etc., and in the purchase of registered animals and of improved agricultural machinery, in increasing the capital of breeders' syndicates, the promotion of co-operative societies and encouragement of the construction of modern poultry houses. In new settlements, some clubs spend their revenue in organizing clearing land competitions, which create emulation among the settlers.

#### CLUB ADVANTAGES

The members of the club receive free of charge, the official JOURNAL OF AGRICULTURE, which serves as a medium between the Quebec De-

partment of Agriculture and the agricultural associations.

Members of the club receive seeds of grasses and leguminous plants, and chemical fertilizers, for a value equal to the amount paid in fees. In this way the members' fees are refunded to them. This seed which is of the best, is purchased wholesale and distributed by the club.

In 1913 the agricultural clubs purchased grass and clover seed to the amount of \$111,042.38. They also spent the following:

For the purchase and maintenance of breeding animals....	\$46,243.08
For the purchase of agricultural machinery.....	7,651.57
For prizes in various competitions.....	5,512.58

The expenses of administration, salaries of secretaries, expenses of judges in competitions, maintenance of agricultural machinery, are also paid by the club.

To sum up, our 689 agricultural clubs are doing good work. The remarkable success that has been achieved during the last twenty-five years in agriculture in the province of Quebec is, in great measure, due to their systematic and efficient organization.

### MACDONALD COLLEGE

#### A BRIEF REPORT ON SOME PHASES OF ENTOMOLOGICAL INVESTIGATIONS

BY E. MELVILLE DUORTE, B.S.A., M.Sc., ASSISTANT IN BIOLOGY

UNDER the provisions of the Agricultural Instruction Act, the writer has been engaged during 1914 and part of the previous season, in conducting investigations on the life history, habits, parasites and methods of control of various injurious insects.

Following is a list of the chief problems which are being undertaken, or which we hope to undertake in the future:—

Life History and control of the Bud Moth (*Imetocera ccellana*) in Quebec.

Flea Beetles of Quebec.

Insects affecting clovers and alfalfas in Quebec.

Wireworms and white grubs.

Injurious leaf hoppers and tree hoppers.

The crickets occurring in Quebec, their habits, life histories and economic importance.

The economic importance of certain groups of Diptera or two-winged flies.

This is an extensive programme, and must of necessity extend over several years. The reason for thus laying out beforehand such a wide field of investigation lies in the fact that while the greater portion of the worker's attention is given to one problem, he is able incidentally to collect considerable data on other subjects which will be valuable when he turns his attention more particularly to these subjects.

The work of the U.S. Bureau of Entomology, and of other entomological investigators has revealed to us the possibilities which lie in the utilisation of their natural enemies to control insect pests. A fuller knowledge of the parasites of injurious insects, their relation to the hosts and the factors which disturb the balance between parasites and host, will be of great value in rendering more effective the continuous fight against our insect foes. Not only shall we be able to breed and disseminate the parasites of the injurious insects, but a knowledge of the inter-relations of host and parasite and of the factors which enable one or the other to gain the ascendancy will probably render it possible for us in many cases to anticipate, and thus be prepared for a sudden increase in the numbers of destructive insects. For this reason the writer has been paying special attention to the parasites, both insect and bacterial, of the pests on which he is conducting investigations. It may be of interest to note some of the work that has been done in this connection. Four parasites of the bud moth have been found. Of these at least three have not been described before as parasites of this insect. The most important is the egg parasite *Pentarthron minutum* Riley. This is a very minute chalcid fly which lays its eggs on the egg of the bud moth. The larval and pupal stages are passed within the host egg, the contents of which are of course destroyed. Occasionally two parasites may develop within

the same egg, but in nearly every case there occurs but one *Pentarthron* larva in each parasitised egg. In fact the small size of the bud moth's egg renders the development of two parasites difficult, and usually, in cases where two eggs are laid in the host, one develops at the expense of the other. I have, however, found two healthy pupae in the same egg. Parasitised eggs can be readily recognised as they turn a shiny black. Last season counts from various orchards in this vicinity gave an average of 77 per cent parasitised eggs.

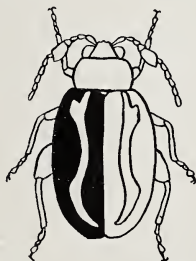
Last year efforts were made to isolate the causal organism of a disease which effectively destroyed large numbers of tent caterpillars. A bacillus was obtained which, when inoculated from pure cultures into the tent caterpillars, produced death within twelve hours. Further experiments will be conducted this year to discover whether the organism retains its virulence when grown for a year in artificial culture, and whether it will have any practical value in the control of the tent caterpillar when it is sprayed on the food plants of these insects.

Miss Zae Northrup of the Michigan Agricultural College published last year a bulletin giving the results of her investigations on *Micrococcus nigrofaciens*, a disease of the white grub. Previous to the publication of this bulletin the authoress sent a culture of this organism to Dr. F. C. Harrison, who gave me this culture with the suggestion that I test its pathogenicity to the species of white grubs occurring here. Few white grubs could be obtained in the local soils last year, and these all died of a disease, the symptoms of which were similar to those described by Miss Northrup. From the dead tissues an organism similar to *M. nigrofaciens* was isolated, so that this disease is probably present in Canadian soils. The writer is anxious to continue these experiments in



order to verify last year's results and also to discover the extent to which the disease occurs in Canada and its effectiveness in the control of white grubs. I therefore request all readers of THE AGRICULTURAL GAZETTE who are in a position to do so to send me during the present season living specimens of white grubs occurring in their localities. The kindness of all who accede to this request will be deeply appreciated.

Attention should be drawn to the following insect pests which are not generally known in Canada.



PHYLLOTRETA SINUATA STEPH., MALE

*The Wavy Striped Flea Beetle* (*Phyllotreta sinuata* Steph.) was observed in this locality during 1913 and 1914. There are no previous records of its occurrence in Canada as a pest. The adult greatly resembles the common striped turnip flea beetle (*Phyllotreta vittata* Fab.) both in appearance and in food habits. It is, however, larger than the latter insect and there are other differences such as the shape of the yellow stripe on the wing covers, and the form of the antennæ of the male. These differences may be observed by a comparison of the accompanying figures. The larva is a small green grub with a dark brown head and numerous black spots. It has been found mining in the leaves of the cress and radish and both larvæ and adults may be found feeding together. The pupa is a small yellow form quiescent in a cell in the soil. A small parasitic hymenop-

teron (*Pleurotropis* sp.) has been reared from this insect.

The control methods employed for the turnip flea beetle, such as the application of arsenical poisons, will doubtless hold this insect also in check.

Another insect observed in Canada for the first time in 1913 is the *Clover Seed Chalcid* (*Bruchophagus fumebris* Howard). It was found in this locality by the writer, and also at the Central Experimental Farm by members of the Entomological Branch. The adult is a small wasp-like black chalcid fly. It may be observed flying among the heads of



PHYLLOTRETA VITTATA FAB., MALE

clover, in the developing seeds of which it lays its eggs. The larva is a footless grub about 1/12 to 1/16 inch long. When full grown it entirely fills the seed, of which it has eaten everything but the coat. There are at least two broods in this locality. The insect hibernates in the seed on the ground, or in stored seed. Where clover is grown for seed the presence or absence of this insect is a potent factor in determining the paucity or abundance of the seed harvest, and it is imperative that control measures should be employed. These consist in the early cutting of the first crop as soon as the heads come into bloom; the fumigation of new seed before planting, and the drilling of seed as deep as is compatible with proper agricultural practice in order that the emerging chalcids may be prevented from reaching the surface.

Another insect which may be men-

tioned here is the *Fringed Anthomyian* (*Phorbia fusciceps*). This insect, sometimes known as the seed corn maggot, the bean maggot or the deceptive wheat fly, has very diverse food habits, as it is known to feed on beans, on seed corn and on crucifers. It sometimes plays a beneficial role, as the larvæ have been found feeding on the eggs of locusts. In 1913, this insect was discovered feeding on the roots of turnips to which crop it did considerable injury. In appearance both the larvæ and the adults closely resemble the cabbage root

maggot. When the fringed Anthomyian occurs as a root maggot of cruciferous plants the same remedies may be employed as against the cabbage root maggot.

In addition to the lines of work indicated above, we aim to come into more direct contact with the farmer by giving him advice on the control of insect pests and also of weeds and fungous diseases. Any person requiring such services should address his request to the Professor of Biology. Specimens of the pest should be sent when practicable.

## ONTARIO

### CORN VARIETY TESTS

BY C. F. BAILEY, B.S.A., ASSISTANT DEPUTY MINISTER OF AGRICULTURE

THE Ontario Department of Agriculture, through the district representatives, is arranging to conduct a corn variety test in practically every county in Ontario. The objects of the experiment are:

1. To demonstrate the advantages of well matured and properly dried seed corn shipped on the cob, as shown by its high percentage of germination and vigour of growth compared with ordinary crib dried corn shipped in sacks after shelling.

2. To suggest the hill system as the most practical method for the production of ensilage, as demonstrated by its equally large tonnage per acre, at the same time permitting of thorough cultivation both ways of the field, thus affording an excellent crop with which to eradicate weeds.

The following seven standard varieties of corn, recommended by the Ontario Corn Growers' Association, have been selected and first-class seed in each instance secured:

DENTS—White Cap Yellow Dent, Bailey, Wisconsin No. 7, Golden Glow.

FLINTS—Longfellow, Salzer's North Dakota, Compton's Early.

Eight reliable farmers in each

county have been selected, with a view to covering the county as evenly as possible, with instructions to devote one acre of land to the seven varieties. Definite instructions will be given to each experimenter as to methods of planting and cultivation. During the summer months each of these fields will be carefully inspected and comparisons made between the varieties as to stand of plants, size of leaf, size and number of ears, date of maturity, yield, etc. It is intended that this experiment shall be conducted for at least three successive years, so that climatic conditions may be less likely to interfere with the results secured in the province. In Ontario, where corn for silage is becoming so largely grown, it is found that an experiment of this kind demonstrating the advantages of certain varieties for certain districts will do much to increase the yield, and improve the quality of silage, and form a basis to get the farmers in the corn-growing counties of the province to undertake the task of growing standard varieties that are suited and that will meet the requirements of the market.

## NOTES FROM DISTRICT REPRESENTATIVES

EXTRACT from report dated February 27th from I. B. Whale, District Representative for Middlesex county at London:

"The Junior Farmers' Improvement Association asked that a representative of the class be put on the agricultural fair board at Strathroy. Their request was granted and they were also promised the stock judging competition at the fall fair, prizes to be paid by the fair board. They decided to arrange a special educative exhibit to be put on at the fair, showing as far as possible, the results of experiments which they intend carrying on, namely, the planting of one, two and three eyes to a set in potatoes, different methods of cultivation, treatment for scab, spraying for blight, the results of seed selection. Three of the boys are feeding hogs twice a day and three times a day. They are dividing the pen, weighing the feed, in order to get actual figures. Several are making a special effort in the selection of their oats for seed, others trying fertilizers, and different methods of cultivation. It was impressed upon those present that it was figures that they wanted at their annual meeting in December, not merely a statement that they had better results."

Extract from report dated May 1st from H. A. Dorrance, District Representative for Dufferin county at Orangeville:

"We have a very large inquiry concerning smut in oats. Previous to this, I had an article dealing with smut in the various papers in the county, and we have a large number

inquiring as to the various methods of treating smut, and druggists inform me that they have had a larger sale for formalin this year than for many years. Many farmers who have never tried the treatment are preparing to treat their grain this year."

Extract from letter of P. Stewart, B.S.A., District Representative for Kenora district, Emo, Ontario:

"That the young farmers of Kenora district are a live lot there is little doubt. No less than nine young men have started out each to grow one acre of potatoes for the special Ontario Government prize.

"It is probable that eight out of the nine acres entered will compete also for the Dryden Agricultural Society's standing field crop prizes. This will make the competition keener and give more competitors a chance to win a prize.

"If eight competitors finish in the contest and fill in the blank forms giving an accurate account of the cost and yield, the first and second prize winners will be given the opportunity of attending the two-weeks short course at the Ontario Agricultural College in January.

"Five of the boys are growing the same variety viz.; Delaware, which goes to prove the popularity of this famous medium-early high quality potato.

"The names of competitors are as follows:—

"L. Euler, Waldhof; D. F. McKenzie, Eagle River; Jas. Shapland, Eagle River; W. H. Lucas, Eagle River; Henry Davis, Oxdrift; Harold Latimer, Oxdrift; Charlie Skene, Oxdrift; Everett R. Martin, Dryden; Ed. Alcock, Box No. 167, Kenora."

## SPRING REPORT ON BEE-KEEPING

BY MORLEY PETTIT, PROVINCIAL APIARIST

**D**URING the latter part of April report forms were sent by the Department of Agriculture to a large number of beekeepers in Ontario. These were filled out and returned and the following summary of the winter loss, condition of the bees and honey crop prospects for 1915 taken from them.

Nine hundred and ninety-three beekeepers reported 37,317 colonies in the fall, and 31,310 colonies in the spring, showing a winter loss of 6,007 colonies or 16.1 per cent. This was largely due to the unfavourable breeding season of 1914, causing many colonies to go into winter quarters with large numbers of old bees; also to the poor quality of the stores, causing granulation, which gives unfavourable results, as in districts where much sugar syrup was fed in the fall the losses are comparatively small.

This is the heaviest winter loss reported for some years, and, if we were to judge by last year's crop failure following the lightest winter loss reported for years, we would expect a bumper crop.

In considering these reports it must be remembered that only one in seven who received the blanks sent reports, also that the inclination is not to report failures, but only successes. One hundred additional blanks came back with the statement that the sender was "not a beekeeper" in many cases having lost all of his small apiary without giving numbers which could be used in making an estimate. It has also been learned that some extensive bee-keepers have lost heavily without reporting in the regular way. It

seems that either the wintering problem has not been entirely solved, even by the specialist, or else he is not always putting all his knowledge into practice.

The colonies that survived had an early cleansing flight, and brood rearing started during the warm spell in April. The first reports received indicated that the bees were in a weak condition, but reports that arrived later show the bees to be building up rapidly and in fairly good condition.

The honey crop prospects vary considerably in the different districts. In the southern counties, the clover is reported in good condition and the prospects extremely bright. The crop outlook about the Georgian Bay is only fair. Farther east—Ontario and Victoria counties—both condition of bees and crop prospects are poor. In the extreme east the early reports were bright, but later ones show spring dwindling and a darkening prospect of the honey crop.

It is impossible to determine with any certainty the honey crop prospect at this date, as a late frost, or a prolonged dry spell, might cause serious loss, but generally speaking while the winter loss is discouraging, the rapidity of the building up of the colonies, the great quantity of pollen collected, and the generally promising appearance of the clover crop, would indicate a favourable season for the beekeepers who have wintered their bees.

Judging by the heavy winter loss, however, and the crop failure of 1914, there does not seem to be much danger of an over-production of honey this year.



## REORGANIZATION OF FARMERS' INSTITUTES

The Department of Agriculture of Ontario has adopted a scheme for the thorough re-organization of farmers' institutes, at once enlarging their scope and giving more weight and practical effect to their proceedings. Superintendent Putnam, who has had the matter in hand, has outlined his plans as follows:

Under the new organization each association shall be known as "(name of riding) Board of Agriculture," and by a distinctive name, e.g., "East York Board of Agriculture."

## OBJECTS

The object of each Board of Agriculture shall be the dissemination of agricultural knowledge in its district, the development of local talent, to encourage the formation of Farmers' Clubs, to secure the co-operation of all agricultural organizations and representatives of the municipalities concerned, in planning for and holding meetings at which demonstrations, lectures and discussions shall be featured, to stimulate a more general co-operation among the Farmers' Clubs and Women's Institutes, and to hold a general rally of the farmers of the district at least once a year. The officers shall endeavour to bring the rank and file of the farmers into touch with the most successful local men, that the masses may become more conversant with the best and most profitable methods of farming, stock raising, dairying, fruit culture, and all other activities connected with the industry of agriculture.

## ORGANIZATION

The districts in which Boards of Agriculture may be formed will be practically the same as the present institute districts, except in some sections of Northern Ontario and several counties in Old Ontario. A

Board may be formed in each district of the Province, exclusive of cities, or in such other divisions as the Lieutenant-Governor-in-Council may authorize. As soon as organization is completed, the Superintendent shall be notified, and the names and addresses of the officers and directors shall be forwarded to him.

## REVENUE

All memberships shall terminate the 31st of December of each year. The membership fee shall be 25 cents, and the members will be entitled to literature published by the Provincial Department of Agriculture for general distribution.

Each Board shall have the power to fix the amount to be paid by the Farmers' Clubs on account of membership in the Board of Agriculture. This sum shall not, however, be less than 15 cents on account of each member of the Club who wishes his name forwarded to the Department.

The revenue of the Board shall be derived from membership fees, grants from the county or municipal councils, legislative grants, the holding of excursions, contributions, etc.

The Department of Agriculture will make grants as follows: \$25.00 to each Board, which receives a similar amount from municipal or county councils, and an additional sum, equal to one-half of the amount received in municipal or county grants above \$25.00. No Board shall receive more than \$50.00 as a legislative grant on account of any one year.

## EXPENDITURE

All money received, whether as members' fees, legislative grant, grant from the county councils or from municipalities, or otherwise, shall be spent within the district in which the Board operates: (1) To

defray actual expenses of meetings; (2) To employ suitable persons to address said meetings; (3) To assist in circulating agricultural, horticultural, live stock, and dairy literature or periodicals among the members, or to establish a circulating library for the use of members; (4) To remunerate the secretary for services rendered.

#### SHORT COURSES AND MEETINGS

A speaker or speakers will be sent to meetings upon condition that the Board will provide a suitable hall in which to meet, and will advertise the

meetings in accordance with plans outlined by the Department. Short Courses will be held under the direction of the District Representative, who will co-operate with the officers of the Board and the directors in the immediate locality. In districts where a representative of the department is not stationed, the department will arrange direct with the executive committee of the Board for the holding of short courses. All requests for meetings in the districts for which speakers are desired from the department must come from the executive committee of the Board of Agriculture for the district.

## MANITOBA

### HON. VALENTINE WINKLER, MINISTER OF AGRICULTURE

BY H. J. MOORHOUSE, ASSISTANT DEPUTY MINISTER OF AGRICULTURE

**H**ON. VALENTINE WINKLER has succeeded Hon. George Lawrence as Minister of Agriculture and Immigration for the province of Manitoba, the latter having resigned with the other members of the Roblin government on May 12th. In Mr. Winkler, Premier Norris has chosen a man of vigour, one who is well posted in public affairs and of sound practical judgment.

Although in no way posing as a political orator, the new Minister of Agriculture is the oldest sitting member in the Manitoba Legislature on the Liberal side and has been at all times a close student of legislation. In fact, so faithfully does he attend to the business in hand that he rarely leaves his seat in the house, preferring to follow everything said and done during the sittings. His long experience and extensive information enable him to throw light upon any matter that he may see fit to discuss and earn him the respectful attention of members on both sides.

He was first elected to the Legislature for the old constituency of Rhineland in 1892, and has repre-



HON. VALENTINE WINKLER  
Minister of Agriculture and Immigration

sented the district practically ever since. In the redistribution which was carried out recently by the Roblin government the constituency of Rhineland was merged with that

of Morden and called Morden and Rhineland. Unanimously chosen as candidate in 1914, Mr. Winkler was returned with an excellent majority in the face of strong Conservative opposition.

Hon. Valentine Winkler was born in 1864, Grey county, Ontario, and received a first-class public school education before going to Manitoba

in 1879. For many years he has engaged in farming and business pursuits with marked success.

He takes up his new duties with a wide knowledge of requirements, with an unsullied reputation behind him, with a determination in all sincerity to serve the farmers of his province faithfully and well.

## GOVERNMENTAL HANDLING OF WOOL

THE Department of Agriculture of Manitoba has issued a circular giving rules for the handling of wool by the department. In his introduction to the circular, which is No. 24, Hon. George Lawrence, then Minister of Agriculture, states that the idea is that the growers shall ship their wool clip to the department at Winnipeg to be warehoused and graded and to be sold in car-lots to the best possible advantage. The graders will not only grade the wool into commercial grades, but they will keep a record of quantity and quality of each clip, so that the farmer who forwards his clip in the best condition will receive a proportionate increase in price over the man who sends in a poorer clip.

The rules set forth that:

(1) Shearing should be done on a smooth floor, never in the dirt, and the fleeces should be kept as compact as possible.

(2) Before rolling fleeces they should be lightly shaken to remove all loose dirt and double-cut fibres. All heavy tags or badly discoloured locks should be removed. The fleece then should be spread on the floor or table with the bright or skin side down. The outside edges are then folded over to the center line of the back and the one-half of fleece again folded over to the other. Now, commencing at the tail, roll the fleece as compactly as possible to the neck.

In the coarser grades of fleeces the neck wool may be twisted and drawn into a band which is wrapped around the fleece and tucked in securely to hold the bundle together. With the finest shorter grades this cannot be done, and it is necessary to tie with twine.

Never use binder or sisal twine for this purpose, as the fibres become detached and adhere to the wool, greatly reducing its value. If possible use the regular paper twine, which may be obtained from any hardware store. If this is not available use any strong, hard, smooth finished twine, wrapping at least once each way, and tying securely in a square knot. When properly rolled and tied the bright or outside of fleece will be on outside of bundle.

(3) The wool may be packed in very clean woven jute, hemp or paper-lined sacks which will be supplied at cost. Shipping small quantities ordinary jute sacks may be used. They should be clean and turned inside out to avoid getting the loose fibres along the seams mixed with the wool. When full, the sacks should be sewn with smooth hard twine.

Addressed shipping tags will be forwarded each consignee, to be filled in, giving actual weights in each lot.

(4) The wool should be absolutely dry at shearing, and should never subsequently be permitted to become wet. Damp wool in storage will ultimately assume a yellow colour, which will prohibit its use in the manufacturing of white yarn. Besides mildew may attack it, which will impair the tensile strength of the fibre. Manufacturers greatly dislike wet wool and prefer not to purchase except at a considerable reduction.

(5) The wool should be shipped between June 15th and July 1st.

Freight to Winnipeg must be prepaid and the blank certificate of entry that accompanies the circular must be returned to the Department not later than 24th May, 1915. It might be mentioned that the Department has circularized every municipality for the names and addresses of all sheep men.



## NOTES

Wheat seeding on the Manitoba Demonstration Farms was finished the last week in April, and the sowing of oats was completed the first week in May. The seeding of corn commenced May 15th.

Operations have started on the Fruit Demonstration Farm at Killarney, Manitoba, with the planting of a number of apple, crab and other

fruit trees and bushes. This planting will be added to from time to time.

As far as Manitoba is concerned the grain is everywhere reported to be looking well, and is unusually early. The Manitoba Department of Agriculture estimates that there will be an increase over last year in the acreage sown to wheat of about fifteen per cent.

## SASKATCHEWAN

## DEPARTMENTAL REPORTS

A report prepared in the middle of April by the Saskatchewan Department of Agriculture estimated the increase of acreage under grain crops this year at three quarters of a million, principally in the southern and central districts. Telegraphic advices indicated that the wheat-seeding was all finished by May 1st, a week or ten days earlier than last year. The wheat was well above ground in many southern districts by April 26th. Oats were pretty generally sown by the first week in May. While there was considerable moisture in some parts, rain was rather widely needed.

Co-operative wool-marketing was so pronounced a success last year that the system is being largely developed in accordance with extended demand. Sheep owners are again reminded that in order to receive increased prices, and it is anticipated that the gain of 6 to 8 cents last year will be improved upon this year, sheep-owners must take the greatest care in preparing and shipping their fleeces. In this connection it may be stated that the number of co-operative associations continues to increase, there being now

165 in the province, of which 16 were recorded in the last number of the provincial GAZETTE.

The foot and mouth disease bulletin, previously noticed, is receiving wide circulation and the number of inquiries received would seem to justify expectation that much good will result by increased watchfulness.

The order-in-council recently passed regarding terms of sale of pure-bred bulls to farmers by the Department of Agriculture under the Live Stock Purchase and Sale Act has been amended so as to allow for a payment of one-quarter in cash instead of one-half as formerly.

The movement initiated by the Department providing for the free testing of seed has proven exceedingly popular. In the first four months of the year 3,336 samples were analyzed, 2,878 or 86 per cent being of oats, and the others of wheat, barley and flax. Wheat germinated well, but barley was low, averaging about 65 per cent. Of the 2,878 samples of oats, 47 per cent germinated over 90 per cent, the samples running all the way down to  $2\frac{1}{2}$  per cent below 40; 83 per cent germinating over 70 per



cent. Wild oats were found in 404 samples and 129 were infected with smut, while over 50 per cent had wild buckwheat. The low germination generally was due to frost. All the germinating work was done between sheets of blotting paper, cut six inches wide and twelve inches long, folded in half and docketed with the

sender's number and the dates. One hundred kernels of the sample were placed in each paper, which were placed in the standard germinator and moistened every morning and evening with the temperature of the room kept as evenly as possible at 68 degrees Fahr.

## AGRICULTURAL INSTRUCTION COMMITTEE

BY A. F. MANTLE, DEPUTY MINISTER OF AGRICULTURE

THE Agricultural Instruction Committee which was recently appointed by Hon. Walter Scott, Minister of Education, held its second meeting on April 17. This committee is composed of D. P. McColl, Superintendent of Education, chairman; A. H. Ball, Deputy Minister of Education; W. J. Rutherford, Dean of the College of Agriculture; A. F. Mantle, Deputy Minister of Agriculture; S. E. Greenway, Director of extension work of the College of Agriculture; A. R. Greig, Professor of Agricultural Engineering in the University of Saskatchewan; J. A. Snell, Principal of the Normal School, Saskatoon; and Dr. E. A. Wilson, Principal of the Normal School, Regina.

At this meeting a number of matters of importance in connection with agricultural instruction in the schools of the province were considered, and a forward policy decided upon. Particular attention will in future be paid to the subject of agricultural instruction in the schools and two directors of this work were appointed in the persons of F. W. Bates and A. W. Cocks. Professor Bates has for several years been

director of agriculture and physics in Regina College, and Mr. Cocks, who was formerly principal of Oxbow high school, is a graduate of an English agricultural college.

These gentlemen will be closely associated with the two provincial normal schools, Professor Bates being assigned to the northern half of the province and Mr. Cocks to the southern half. They will follow up the work of the teachers in their respective districts both in public and high schools. They will also be ex-officio members of the above-named Agricultural Instruction Committee.

Short courses in agriculture for teachers in elementary schools will be held at the University of Saskatchewan, Saskatoon, from July 6 to July 23.

A corresponding course in household science will be held in the Provincial Normal School, Regina, during the same period.

It is probable that a short special course in science and agriculture for inspectors and teachers of science will be held at the University of Saskatchewan from July 19 to July 30.

War—grim, ruthless, devastating, is shaking the civilized world; not only bringing death and ruin to millions, but dislocating the whole fabric of modern life, and so violently and in such strange ways disturbing the channels of national and international commerce and industry, that extraordinary readjustments have to be made, steps taken for which there is no precedent, and never was need so great for both steady heads and stout hearts.

—Hon. Martin Burrell.

# ALBERTA

## RECENT LEGISLATION

**E**XCEPTING a couple of amendments to the Statute Law of the province, entirely of a local character, and an act cited as "The Stock Inspection Act," there was no legislation affecting agriculture passed at the recent meeting of the Alberta legislature. The new act provides for the appointment of special inspectors and special deputy inspectors of stock and of slaughter houses or abattoirs. These inspectors are authorized to seize and sell any animals being unlawfully shipped or unlawfully held. The money received is to be forwarded to the Department of Agriculture. Shipment of stock that has not been inspected is prohibited. Registered stock are exempted from this provision. Inspectors are forbidden to issue certificates, for which, only five cents per head, with a minimum of twenty-five cents, is charged, unless the shipper produces a bill of sale, or the owner or agent verbally consents to the issue of the certificate. If the stock is not branded, a memorandum has to be furnished setting forth the age, sex and description of each animal. Transfers or sales cannot take place without the inspectors' certificate. Auctioneers are required to furnish the inspector with

a description of each animal to be sold. Duplicate certificates must be sent to the Department. In case of improper conduct the inspector can demand return of a certificate. For cattle disposed of by private sale a fee of ten cents per head is charged, with a minimum of twenty-five cents, that must be paid before the transfer takes place. Butchers and hide dealers are required under this act to take out a special license, for which the fee is one dollar, and are required to keep a record of all cattle slaughtered, with the names and addresses of the persons from whom obtained. Railway agents are forbidden to accept hides for shipment from any other than a licensed butcher or dealer. Every hide must also be inspected and a fee of 10 cents paid for each on account of such inspection. Inspectors must make an annual report in detail to the Department of Agriculture. Contravention of the Act in any particular means a fine of one hundred dollars. The act repeals the Stock Inspection Ordinance.

## APPROPRIATIONS FOR THE YEAR 1915

Following are the appropriations made for agricultural purposes for the year ending 31st December, 1915:

Expenditure under Agriculture Society Ordinance, including Grants to Exhibition Association at Edmonton, Calgary, and Lethbridge, of \$5,000 each	\$100,000. 00
To provide for expenses of Official Judges at Agricultural Exhibitions.	7,000. 00
To promote the work of Live Stock and Agricultural Institutes and Associations.	20,000. 00
To promote and encourage the production of Pure Seed Grain, and Provincial Seed Fair.	4,500. 00
Administration of Demonstration Farms.	15,000. 00
To provide for holding a Fat Stock Show.	2,000. 00
Purchase and equipment of Demonstration Farms.	8,000. 00
Destruction of Grey or Timber Wolves.	4,000. 00
Destruction of Noxious Weeds.	25,000. 00
Stock Inspection.	5,000. 00

To provide for Expenditure in connection with brands and publication of Official Brand Book.....	10,000.00
Collection and compilation of Vital Statistics.....	11,000.00
Collection and compilation of Medical, Agricultural, Industrial and other Statistics.....	4,000.00
To provide for expenses in connection with the Protection of Game.....	30,000.00
To provide for Bacteriological and Pathological Works in connection with Laboratory.....	9,000.00
To promote and encourage Dairy Work.....	12,500.00
Operation of Demonstration Farms.....	50,000.00
Operation of Schools of Agriculture.....	20,000.00
Grant to Cattle Breeders' Association.....	1,500.00
Grant to Horse Breeders' Association.....	1,500.00
Grant to Sheep Breeders' Association.....	400.00
Grant to Swine Breeders' Association.....	200.00
Grant to Poultry Breeders' Association.....	200.00
Grant to Alberta Fairs' Association.....	1,000.00
To assist Creameries, not exceeding \$1,500 to each creamery.....	4,500.00
To provide for advance payments and general operating expenses of Creamery Work.....	150,000.00
Expenditure under Prairie Fires Ordinance.....	4,000.00
Grant to United Farmers' Association.....	1,000.00
Expenditures for Immigration, Colonization and Advertising.....	20,000.00
Contingencies.....	1,000.00
To promote and encourage the Poultry Industry.....	8,000.00
Grant to Alberta Natural History Society.....	100.00
To procure mounted heads of animals, birds, etc., for Decorative and Museum Purposes.....	1,000.00
To provide for scholarships for students attending Agricultural Colleges.....	1,500.00
Grant to Alberta Fish and Game Protection Association.....	100.00
Grant to Spring Stock Show, Edmonton.....	5,000.00
Women's Institutes and Grants to same.....	2,000.00
Grant to Western Canada Irrigation Association.....	500.00
To provide for advances under Elevator Act.....	200,000.00
	<hr/>
	\$740,500.00

Of the foregoing amount \$212,500, namely the appropriations for purchase and equipment of Demonstration Farms, \$8,000, for creamery assistance, \$4,500, and for advances under the Elevator Act, \$200,000, are chargeable to capital, and the remaining \$528,000 to income.

#### ESTIMATED REVENUE

The estimated revenue of the Department of Agriculture, \$289,000 is as follows:

Fees: Game licenses, sale of estray animals and other fees.....	\$ 64,500.00
Reimbursement of advances on Butter and Poultry.....	150,000.00
Repayment, account of Seed Grain.....	7,000.00
Repayment, loans to Creameries.....	2,500.00
Demonstration Farms.....	60,000.00
Poultry Breeding Plant.....	3,000.00
Registration of Threshing Machines.....	2,000.00
	<hr/>
	\$289,000.00

#### OFFICIAL APPOINTMENTS AND CHANGES

**H**ORACE A. Craig, B.S.A., Alberta, having been superintendent of fairs from 1906 to 1911, and since Guelph, succeeds George that time superintendent of the Harcourt as deputy minister demonstration farms of the government of agriculture. Mr. Craig is well known and very popular throughout in Alberta. He has been a



conspicuous success in both positions. He was one of the team from Guelph college when that institution captured the famous student's judging trophy at the International Live Stock show at Chicago, his

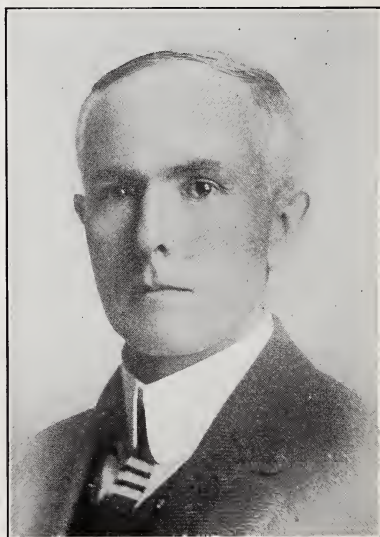


H. A. CRAIG, B.S.A.  
Deputy Minister of Agriculture

individual score in the various classes being very high. He has always taken a keen interest in live stock. The splendid horses on the demonstration farms and the success of the steer-feeding competition bear eloquent testimony to that fact.

THE dean of the faculty of agriculture in the university of Alberta is Ernest Albert Howes, B.S.A., Guelph. Mr. Howes' name is well known in educational circles both in Canada and the United States. He was born in the year 1872 on a farm near Vankleek Hill, in Prescott county, Ontario. He was educated at the public and high schools of Ontario,

and is a graduate of the Ottawa Normal School. He spent eight years teaching public school. He was one of the teachers selected by Dr. James Robertson to take charge of school garden work in Ontario, and he started the first school garden in that province at Bowesville, near Ottawa. He took agricultural short courses at Cornell, Columbia and Clark universities, as well as at the Ontario Agricultural College. He was appointed principal of the Macdonald Consolidated School at Guelph, which position he occupied for four years. This school specializes in household science, manual training and elementary agriculture. He then attended the Ontario Agricultural College, from which he graduated, securing the degree of B.S.A. He spent one year with the



E. A. HOWES, B.S.A.  
Dean of the Faculty of Agriculture, University of  
Alberta, Edmonton

Dominion Seed Branch in the Department of Agriculture at Ottawa, in charge of the germination laboratory and the field plot tests, after



which he left for the state of Nevada. For one year he was agronomist at the irrigation station at Reno, and then was appointed professor of agronomy at the University of Nevada, which position he occupied until he resigned in the fall of 1913 to take the principalship of the Vermilion School of Agriculture, Alberta. The last named position he filled until his appointment on the first of May as dean of the faculty of agriculture in the University of Alberta.

**S**IDNEY G. Carlyle, appointed superintendent of demonstration farms for Alberta on May 1st, 1915, was born in Dundas County, Ontario. Mr. Carlyle lived on his father's farm until 1895, when he attended for one year at the Guelph Agricultural college, later finishing his course at the Wisconsin agricultural college. He afterwards farmed in Ontario, being a successful breeder of pure-bred Holstein cattle. During these years he did a great deal of institute work and judged at fairs for the provincial government in Ontario. He came to Alberta in the spring of 1913 as instructor in dairy farming

and had charge of the dairy herds on the provincial demonstration farms, as assistant to Mr. Craig, until his appointment on May 1st as superintendent of demonstration farms.



SIDNEY G. CARLYLE  
Superintendent of Demonstration Farms

## FIRST CROP OF GRADUATES FROM THE PROVINCIAL SCHOOLS OF AGRICULTURE

BY H. A. CRAIG, B.S.A., DEPUTY MINISTER OF AGRICULTURE

**T**HE Alberta Provincial Schools of Agriculture at Claresholm, Olds and Vermilion completed their second teaching year on March 26th, on which date closing exercises were held at all three schools. As the course extends over two years, this year's work turned out the first crop of fully graduated students to the total number of eighty-nine boys and girls distributed as follows:

Claresholm.....	28 boys	8 girls
Olds.....	22 "	8 "
Vermilion.....	15 "	8 "
	65 boys	24 girls

At Claresholm the diplomas in both the Practical Agriculture and Household Science were presented by Dr. Shuttleworth of Blackie, and addresses were delivered by Mr. Marnock, President of the Board of Trade, Lethbridge; J. C. Miller, Director of Technical Education, Edmonton; H. A. Craig, Deputy Minister of Agriculture, Edmonton; C. S. Noble, Nobleford, a member of the Board of Agricultural Education, and Jas. Clements, of the Department of Agriculture, Edmonton. W. J. Stephen presided and five hundred

visitors from the town and district attended the exercises.

At Olds, the Hon. Duncan Marshall, Minister of Agriculture presented the diplomas, giving at the same time a forceful and enlightening address on the establishment, progress and aims of the schools which called out a lively response among the local enthusiasts for the institution. F. M. Black, representing Mr. P. Burns of Calgary, presented the two prizes, each of fifty dollars in gold, to the winning girls in cooking, sewing and buttermaking, and to the winner among the boys in the competition in stock-judging, grain judging, weed seed identification, blacksmithing, carpentry and buttermaking.

Addresses were delivered by Messrs. E. L. Richardson, Calgary, L. Hutchinson, Duhamel, both members of the Board of Agricultural Education, and by W. J. Elliott, Principal of the School.

Dr. Tory, President of the University, and also President of the Board of Agricultural Education, made the presentations at Vermilion. He took occasion to set out the significance and practical aspect of the educational services furnished by the Schools of Agriculture, and also the necessary articulation of these Schools with a type of training and science study properly belonging to the University. Mr. C. Marker, Dairy Commissioner for the Province, and Mr. S. G. Carlyle, Superintendent of Demonstration Farms, gave short practical addresses to the graduating students.

The enrolment at the different schools over the two seasons is as follows:—

Claresholm:—	1913-14	1914-15
Boys.....	71	75
Girls.....	35	33
Olds:—		
Boys.....	61	88
Girls.....	39	35
Vermilion:—		
Boys.....	34	43
Girls.....	28	10
Total.....	268	284

The total count of names on the registers of the schools is five hundred and fifty-two pupils, but, as a considerable number of those in the second year have come over from the previous year, it reduces the number of persons directly affected by the school services to between four hundred and fifty and five hundred pupils. This is not simply favourable, but phenomenal. The school is a wholly new type of school in a comparatively new country and has been established in the interests of the farmers, who, as a class, are not usually over hasty in taking on new things without question. It may be safely concluded that the schools are fitting aptly to a direct need, or they would not enjoy the patronage that they do. One of the schools is in a district in which initial settlement is only half a dozen years old.

The preponderance of boys in the classes shows how aptly the schools fit the needs of the farm boys. The town high schools do not meet the case of the country boy who wishes to follow country work. It rather weans him away from the farm. The agricultural college does not take him up where it finds him. The agricultural school, however, does. It begins lower down, it touches his concerns immediately, and it likewise fills the gap between the common school and the university schools of agriculture.

Most of the boys who have graduated this year are back on the farm, but a good many of them are entering the college of agriculture at the university this fall. The schools have succeeded because of their definite and specific aim in relation to country needs and likewise because their establishment on the Demonstration Farms has given the only right atmosphere in which an agricultural school can properly flourish. The results justify the effort of the Minister of Agriculture in their establishment and development as well as in their expansion, both as to the scope of the work and the number of schools provided.

## NOTES FROM THE SCHOOLS OF AGRICULTURE

## CLARESHOLM

ON the experimental area up to date, the following has been sown under first-class climatic and soil conditions:—

- April 6th.—Started seeding wheat;
- “ 13th.—Started seeding oats;
- “ 20th.—Started seeding peas;
- “ 20th.—Started seeding sugar beets and mangels;
- “ 22nd.—Planted early vegetables, such as parsnips, carrots and onions.
- “ 24th.—Started seeding barley.

The Dairy Competition is in progress.

One of our teachers is in charge of the work against the army cut worm in the Raymond district for the Provincial Government.

## OLDS

BY W. J. ELLIOTT, PRINCIPAL

IT is a very significant fact that applications are coming in already for next winter's term. Some 40 to 50 of last year's freshman class have sent in their applications for next winter, and in addition to this we have some six or eight applications from boys, who are preparing to take the freshman class, beginning next fall. It is a surprising thing to see the applications beginning to come in as early as they are this year.

The Animal Husbandry branch of the school is planning to continue the dairy test work with the farmers of the district. Last year the farmers were allowed to enter any or all of the cows in their herd, and only the highest producing cow counted in the contest. During the coming summer the test will be modified to the extent that farmers will be required to put in as a minimum, a group of five cows. If they are

milking more than ten cows, it will be necessary for them to put in half of their herd. In this way we hope to get a very much better idea of the productive capacity of the cows in the district, and also hope to get information that will be much more useful to the farmers. Already some 15 farmers have signified their intention of entering cows in the contest, and before the end of May, when entries for the contest will close, we anticipate that we will have all that the staff can possibly care for. Members of the staff have to visit each herd once per month to take samples of the milk and also to see the milk weighed. Splendid live stock prizes are given by the Hon. the Minister of Agriculture in this connection.

In the experiment field, the agronomist is taking up quite largely the matter of variety testing so that we may select small varieties of grains and grasses that seem to be best adapted to the locality, and then will be able to work more definitely with those. There are almost 100 plots seeded at the present time, and weather conditions point to very good results. The alfalfa which was planted last year has come through the winter apparently in first class shape. Both the broadcasted seed and that sown in rows promise very well.

In the agricultural mechanics branch, the instructor will spend the summer assisting farmers in the erection of buildings, in the proper grading up of roads, and with such gasoline engine troubles as they may develop.

The extension work of the School of Agriculture is proving to be very much thought of by the farmers in the district.

## PART III

# Rural Science

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### CARE OF SCHOOL GARDENS DURING SUMMER VACATION

PRINCE EDWARD ISLAND

BY R. H. CAMPBELL, SUPERINTENDENT OF EDUCATION

IN Prince Edward Island we do not anticipate very much trouble this year in providing for the care of school gardens during the summer vacation. In our rural schools the summer vacation is comparatively short. These schools will close June 30th and re-open August 9th. Teachers who start school gardens will be held responsible for their care. If the teacher is not prepared to assume the responsibility of making such arrangements as will provide for the care of the garden during July and the first few days in August she is advised not to start a garden at all. It is felt that, if the school garden has been properly conducted, interest among pupils and parents will be sufficiently great to make such

arrangements easily possible. The teacher is paid a bonus for a well-kept school garden properly used in the instruction of the pupils, but the bonus is not payable till August, when the Inspector's final report on the condition of the garden is received. We have ten inspectors or one for every group of 48 schools. We expect this summer to have about one hundred school gardens in operation or about ten to each inspector. During the summer vacation each inspector will visit all the gardens in his inspectorate and will see that the arrangements for their care, previously made by the teacher, are being carried out, or should the need arise will make such other arrangements as to him may seem necessary.

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### QUEBEC

BY JEAN-CHARLES MAGNAN, OFFICIAL AGRICULTURIST

THE care and maintenance of the school gardens in the province of Quebec do not give much trouble, particularly in the educational institutions which are managed by brothers or nuns. When the school year is over, that is,

towards the end of June, the teacher who has supervision of the school garden, calls the pupils together and gives them the necessary instructions. The children must attend to the garden during the summer vacation at regular hours appointed by the



school authorities. For instance, once or twice during the week, they visit their garden, accompanied by a guardian. They bring their tools, or use the tools belonging to the schools, when the trustees are thoughtful enough to buy same for the pupils.

Then the scholars spend an hour or two in the school garden, hoeing, cultivating, watering, etc. Some of them transplant vegetables and shrubs, others prune tomato plants or fruit shrubs that have been given to their care by the teacher. All of them fight the insect pests and weeds. When their work is done, the children are called together by the teacher, and they make a record of their work and observations in an agricultural copy-book prepared for their special use, entitled, "Diary of My Garden."

In small schools, which are far away from the village, it is difficult to have the children meet once or twice a week, as some of them live a mile or two from the school. Very often, too, the teacher leaves the school to spend the vacation with her family. In this case the children harvest their products at the end of the school year. These products consist of early vegetables, such as radishes, carrots and lettuce. They are not very big, but they are the result of their work.

Furthermore, the lessons in horticulture that the teacher has had time to give will encourage the children to keep a small home garden. In the fall, the vegetables which the pupils have grown are brought into one of the school rooms, where a small agricultural school fair is arranged.

However, in some places the teachers spend the summer in the school, or in the neighbourhood of the school. Then, an excursion to the garden by the pupils can be easily arranged. But the teacher must appoint the hour and the day and she must accompany the pupils herself at each visit.

Lastly, although the teacher may have to leave the school for some reason during the vacation, she can arrange for the garden to be cared for, by organizing in June, with the help of the pupils and of the board of trustees, a club of children-gardeners.

One of the school trustees is requested by the teacher to act as patron of the club. He accompanies the children to the school once a week, at an hour appointed by an executive committee of the pupils and approved by him. This method is practical when the school is near an inhabited house, the occupants of which agree to watch over the garden and prevent strangers from trespassing. It is better, however, in the interest of pupils, to appoint a farmer as patron of the club.

Lastly, some teachers arrange for home gardens. Plants or seeds are distributed to the children by the parents. Instead of having a school garden, the pupil works a plot on his father's farm. All plots are visited twice or three times during the vacation by the teacher, or a school trustee. In this way, the children are stimulated and encouraged. Little by little also the attention of the parents is aroused to things relating to the school. This is also a very important point.

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## ONTARIO

BY PROF. S. B. MCCREADY, DIRECTOR OF ELEMENTARY AGRICULTURAL EDUCATION

**H**ARM DONE BY NEGLECTED GARDENS. — For Ontario school gardens at rural and

village schools, it is urged that their summer holiday care be one of the very first considerations. In plan-

ning for the garden, teachers and trustees are warned not to make a commencement unless they are certain that the garden will not be neglected. Teachers who expect to be leaving their school at the end of June are advised not to commence a garden unless they are sure that sentiment and organization in the community will carry it through successfully. Where a garden has been carried on in previous years, and cannot be expected to continue successfully, it is advised that the ground be put into good shape and seeded down. Neglected school gardens are a menace to the cause of agricultural education. They retard real progress. It is better not to commence a garden at all in most cases, than to demonstrate only a failure. One year's failure will ordinarily be more convincing of the uselessness of school gardening as an educational enterprise, than several years of successful gardening will be convincing of their usefulness.

**PLAN A YEAR AHEAD.**—Where a garden is to be undertaken for the first time the plans for its preparation and care should be made before autumn passes. The best security for good care will be to arouse community interest in the garden. The people must be made to understand what the garden stands for in terms of education of their children as well as in terms of community "getting-together". The garden must be made *their* garden; it should not be merely the teacher's garden in which they acquiesce for the sake of keeping peace. The people should as far as possible plan it themselves. They should be represented personally in the garden experiments and demonstrations. The trustees should have a "trustees' experiment". The local branch of the Women's Institute should be represented in some part of the flower growing that is to be done to beautify the school. Some of the ex-pupils should be enlisted for some of the work. In fact an ideal school garden will be for the

education in agriculture of the whole community, and, more than that, it should be a training ground for the development of the "co-operative spirit", in which lies the best hopes for our needed rural reconstruction.

**WHAT ONE COUNTRY TEACHER DID.**—This plan is well set forth in a letter received from a teacher last November. She was not specially framed for the work. Any teacher with the missionary spirit could do the same. But she saw the needs of the situation and recognized that country people must be personally interested; and that they must have the school's project explained to them. It will be a strange thing if these people do not re-discover, or possibly discover for the first time, the possibilities of their own school to yield them a rich educational service specially adapted to their needs as farmers. Here was their "getting-together" for school improvement and for an advanced step in rural education. It is to be hoped that this teacher may remain long enough with them to establish them firmly in their progress, or, failing this, that her successor may continue her good work. There is nothing so much needed to-day for the country as unselfish and continuous leadership from rural-minded country teachers. This is the letter; I have given it a title that points out the need:—

#### THE NEW LEADERSHIP

"It just occurred to me that you would be interested in the result of my attempt to start a school garden out here.

"I called a meeting of my trustees at the beginning of October, and explained to them what 'Agricultural Education' would mean to their children. They that evening decided to hold a School Bee on October 20th. Meanwhile I visited all the ratepayers, explained our object, and got the promise of a load of good earth, one of barnyard fertilizer, or of maple trees, from each one. None refused.

"October 20th was a rather dreary day, but the men came with their loads. They cleaned up the school ground, planted maple trees, dug up flower beds and borders, and ploughed a good large plot for a school garden, after enriching garden and beds

with good earth and fertilizer. They also removed a great many loads of stone from garden and grounds. They certainly were a busy and cheerful crowd. Now all is in readiness outdoors for our spring work.

"This is a section which has had the name of being thoroughly opposed to anything along agricultural lines in schools. I doubt if they ever before understood what was meant. Our Inspector seems delighted with results."

Eastern Ontario, November, 1914.

USE THE ANNUAL SCHOOL MEETING.—When the garden has been established already perhaps the best way to enlist and direct community interest is to use the annual school meeting for setting forth and discussing plans for the following season. The teacher should, if possible, attend the meeting, and previous to it, should stir up an interest in the proposed discussion by enlisting her School Progress Club as propagandists. If she cannot attend, she should make her plans and desires known to some of the trustees or some of the more progressive people. Nothing should be left to chance. From some of the mothers, support should be sought, even to their attending the meeting to show which way their hearts turned for the sake of their children's education. Per-

haps the annual meeting could be made a sociable affair, held in the afternoon or evening with a lunch served. So much the better for next summer's gardening and all the school work.

A COMMUNITY'S SCHOOL GARDENING.—With the foundation thus securely laid in the general unselfish, active interest of the people of the community, plans for the summer care of the garden can give little anxiety. It is only a matter of good organizing. Everybody will be helping. The trustees will do their share. The mothers' committee will do their share. The ex-pupils will be strong supporters and protectors. The School Progress club will oversee the pupils' work. The school will be alive, and a thing of beauty all summer, even if the teacher cannot be on hand to join in the many good times her people have had at their school. When she comes back, she will find that her community still holds together round the school garden. A simple little school fair in September will be the fitting climax to the community-building and agricultural-education enterprise.

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## MANITOBA

BY H. W. WATSON, M.A., DIRECTOR OF ELEMENTARY AGRICULTURAL EDUCATION

THE proper care of the school garden during the summer vacation is a real problem and one that gives many teachers considerable worry. Some teachers report that during the holidays the weeds were allowed to grow to such an extent that the trustees took the mower and cut down everything that came in the way. It was easier to drive the mower than to use the hoe for an hour or two. Other teachers report that the gates were opened—or the fence broken down—and stock was deliberately driven in to eat down anything and everything that came in its way.

Several teachers report that vegetables and even grains were stolen from the school plots, previous to being harvested, by grown-ups not connected with the school. Such conditions are certainly very discouraging to an energetic teacher and interested pupils. However, if the garden be properly prepared, planted, weeded, thinned and cultivated until vacation begins, it will have taught many valuable lessons; and the conscientious teacher should not be discouraged even if the work ends there.

Still, gardening is a whole summer's work and should be made of educa-



tional value until the various crops are harvested, reckoned up, disposed of, the profits calculated and reports made thereon. To accomplish its best results the school garden should be kept in proper condition during the vacation until harvest time, and hundreds of school gardens throughout Manitoba were kept in such condition during the year.

#### ESSENTIALS TO SUCCESS

"Where there is a will, there is a way." The wise and thoughtful teacher who has a desire to preserve the good appearance of a school garden will surely find a "way."

Some teachers, it is hoped they are few, intend leaving the school, or hope to be able to leave, at vacation, and thus take very little interest in the garden and create less interest in the minds of the children. However, the faithful teacher richly deserves her vacation and should be freed from any worry regarding the dangers that may befall the garden plots during her absence.

The garden should be considered by children and parents an important part of the educational plant—the outside laboratory. The plots are the property of the children, who should be taught to assume the responsibility for their care and preservation.

The degree of interest created in the children by the teacher will determine the amount of care given the plots during vacation. Agriculture and horticulture should be taught systematically throughout the entire year, but special discussions regarding the school garden should be held during March and April. By the first of May everything should be in readiness for the children to put into execution the plans of the preceding months. After the somewhat tiresome work of preparing the soil, and carefully planting the seed, the real interest should begin as the various plants in turn begin to make their appearance. Very soon each morn-

ing's observations will create a fresh interest in the garden; at every turn the young gardener will experience a new thrill of inspiration.

The teacher should take care that all work is carefully and neatly done. The pupils should realize that they have done something worth while, have done it well and are worthy of success. All should feel satisfied with the results of their labours and be proud of their successes.

All work should be done in due season, so that at vacation time the plants will be well advanced, entirely free from weeds, thinned out when necessary and properly cultivated. An interest may thus be created that, if only directed wisely, will remain in the minds of most pupils, who will solve the "weed problem" during vacation.

#### METHODS EMPLOYED TO SOLVE THE PROBLEM

Many children regularly visit their plots during the vacation and keep them in condition. Some are driven by their parents, who also become interested, and at their regular visits to the village store, or post office, make trips to the school plots as well.

Trustees of many schools meet on Saturday afternoons and round up the village children to accompany them to the school grounds and perform the necessary weeding, etc. The children's plots (of many of these schools), furnish sufficient flowers for the Sunday services throughout the summer.

A janitor of a village school, who is generally hired by the year and employs his time during vacation in cleaning and repairing the school, should be interested in the grounds as well and act as a leader of the children. In some schools, committees are appointed for each week of the vacation and each committee, in turn, is held responsible. This plan works well in town schools where many children go camping for part of the time.



A municipal system of government may be profitably organized in connection with the school plot, with a reeve, alderman, road-inspector, weed-inspector, etc.

#### INCENTIVES TO SUSTAIN INTEREST

Competitions and exhibitions, both in rural localities and in towns, have worked wonders in creating interest in improved agriculture and horticulture. They should be of equal, or greater, stimulus to children; in fact a little money will extend much farther, and produce more marked results, when spent on children than on their parents.

Such competitions in school and home garden work have solved the

"weed problem" in hundreds of districts. The plots are judged at the end of June, again at the end of August, and in addition to the marks obtained at these judgments, competitors must exhibit at the school fair the best that the plots produce.

Many teachers hold an individual school fair early in September; the winners at these compete in a municipal or community fair, and the winners at the latter can enter competitions for the entire inspectorate.

The school fair, including area from the single district to the inspectorate, is proving the best incentive to good results, not only in school gardening and agricultural work but in all lines of school effort.

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### BRITISH COLUMBIA

BY J. W. GIBSON, DIRECTOR OF ELEMENTARY AGRICULTURAL EDUCATION

THERE are those who regard the care and management of the school garden during the summer holidays so difficult as to make school gardening a rather doubtful undertaking. It will usually be found that such people take a similar view of any new movement which presents difficulties. They are not lazy people either, but merely given to "fearfulness" and needless apprehension. Anyone who has had experience in the organization and management of school gardens knows that the vacation problem does offer difficulties, and also knows that there are numerous ways of solving those difficulties.

Probably no two teachers will solve these difficulties in exactly the same way, but almost any method adopted will have some bearing on the question of the child's responsibility for the care of the garden during the summer holiday season. Some have advocated the placing of all responsibility upon the pupils, whilst others have gone to the other extreme and have relieved the pupils

of all responsibility. Neither is desirable and as is frequently the case the middle course will be found best in actual practice. We would all like to think that the pupils who take part in the work would maintain sufficient interest in it throughout the season not to permit their garden plots to become unsightly through lack of care and cultivation, but, unfortunately, many children are not able to give personal attention to their plots, and through no fault of their own. Some teachers have made absolute responsibility for summer care the chief condition on which the pupils might participate in school gardening. This usually ends in "breach of contract" for a large percentage of those taking part, and also places the work on a purely voluntary basis. Many of the most interested pupils, and certainly many of the most conscientious, are, by this means, debarred from taking part in school gardening, and it cannot be made the useful instrument in education that it should be, unless all the members of a class take part

in it. On the other hand, no person will say that the pupils who make no provision for the proper care of their gardens during the holidays are entitled to the same credit in this subject for the year as those who give their gardens attention weekly. Some system of merit marks may be used with good effect and these should be based upon the following points: (1) Conditions of the garden on the closing of school in June; (2) Number of hours devoted to the care of the gardens during the holidays; (3) Quality of the work done; (4) The garden diary or weekly garden report for July and August. This diary will contain a record of observations made in the garden from week to week as well as of the work done. Special credits may be given for drawings made from Nature to illustrate the garden report. To carry out this plan successfully, it will be necessary at the closing of school in June to make two definite appointments. (1) A garden day (or half day) to be observed by the pupils weekly during the months of July and August; (2) A garden manager or supervisor who will be in attendance at the garden on that day each week in succession. The school garden supervisor should be appointed by the School Board and should be a person who is not only entirely in sympathy with the work, but also conversant with the teacher's method of conducting it. For this reason the Board should consult with the teacher before making such appointment. The amount to be paid to such supervisor will depend upon the size of the garden and the number of pupils taking part in the work. It should not exceed \$3 per week and might be as low as \$1 per week. In a small garden, three hours weekly, preferably in the morning, will be quite sufficient to keep the garden in good condition. In large gardens eight hours per week might be found necessary. One hour per week is usually sufficient for each pupil to

spend in actual garden work. The writer has employed for this purpose both men and boys, and recommends a competent boy who has had experience in gardening. There is no reason why a young woman should not be appointed in some cases where the garden is not a large one. The supervisor registers the attendance of the pupils who come from week to week in gardening day and reports on the work done in each plot by number. He is put in charge of the school tools and is authorized to direct the pupils in the work which they are to do for the day. His consent must be obtained by pupils before removing flowers or vegetables from their plots during the summer. He will have charge of watering the garden when it is found necessary to do so and he will do the necessary work on the plots of absent pupils and record the same.

In order to create a spirit of emulation the Board may arrange to give small prizes to the owners of garden plots for good work done. These should be first, second and third and should be based upon an inspection at the end of July and another just before the opening of school at the end of August. If possible, in cities and municipalities where four or more school gardens are in operation, the School Board should arrange to present some sort of trophy or emblem of honour to the school winning the highest number of points for good arrangement and care of the garden during the summer holidays.

A part of each gardening day should be devoted to outdoor games and other social enjoyment. This is a most excellent opportunity for the Women's Institutes to do a really valuable service to the schools. They might arrange a school picnic in the afternoon of one of the gardening days, once in July and once again in August, preferably in the judging or inspection day.

# THE COMMUNITY CENTRE MOVEMENT

BY A. KENNEDY, M.A., INSPECTOR OF SCHOOLS, WEYBURN, SASK.

ONE finds considerable satisfaction in the increasing evidence that the people are awakening to the recognition of the fact that the school is the centre of the community. With the recognition of this fact will come the beginning of the solution of the problem of the ruralizing, or socializing, of the Rural School. By reason of the conditions under which the settlement of the prairie has proceeded, the school is usually the only public building in the community, serving not only the needs of the children during the week, but also the needs of the people on the first day of the week, and often the social needs of the community in the evening. The period of "settling" has given place to the period of "settling down," and with this change has come the realization of wider possibilities in the school as the heart and centre of the community. Various agencies have been at work interpreting and encouraging different phases of the movement and the people are showing themselves anxious to keep pace.

The type of building now being erected is a vast improvement on the types hitherto prevailing; the little red school-house is fortunately passing. The modern rural school must not only conserve the health of its occupants, but must also provide physical and spiritual comfort so that the educational process may go forward most efficiently. It must meet the demand for such conditions as are necessary for the actual work of instruction and study, but also those indefinable æsthetic and psychological influences produced by a well designed and harmonious class-room which is attractive, cheerful and restful. Such a building has replaced the older type in South Weyburn School District 670,

the result of the desire of the district to provide the most satisfactory housing for their children; other districts are following the example.

The enlarging and improvement of the grounds have proceeded steadily in line with the campaigns conducted by the Departments of Education and of Agriculture in respect to tree-planting, School Gardens and Elementary Agriculture. Much more, however, remains yet to be done along this line.

The enlarging and enriching of the course of study in respect to Music, Art, Domestic Science and Manual Training is proving an important factor and progress has begun; much may be hoped for in the development thus made possible.

But the training, energy and personality of the teacher contribute the vitalizing factor. Communities with the real desire for progress seek the well-qualified teachers and make the conditions so inviting that a permanency is established.

Travelling libraries sent out by the government are already reaching sixty communities; this movement, backed by the propaganda of the Saskatchewan Library Association, provides a very necessary and helpful point of contact and co-operation. Grain Growers' Associations and Homemakers' Clubs provide still other points of contact.

The various agencies, however, have not yet crystallized an organization for the promotion of the Community Centre movement. In Wisconsin there is such an organization, and it has already accomplished much good.

"One bitter January day Miss — looked from her rostrum at twenty-six discontented, sulky pupils. The school house was a dingy old barn



of a place with only one room and no place even to hang wraps. The heating system was a stove in one corner, out of which proceeded some heat, but no comfort; the basement was a damp hole in the ground—in fact, it was a typical rural school. And, to make it still more accurately typical, across the wind-swept ice of Lake Mendota could be seen the vast assemblage of buildings of the greatest state university in America, on which Wisconsin had poured out millions, with a splendid enthusiasm for education.

"So much for the dome; so pitifully little for the basement.

"The stove smoked, and the children rubbed their eyes and looked so unhappy that Miss —— made up her mind that she would do something. She did.

"The first thing was to get the people together; to remove the local feeling that the school was good enough.

"Now, that community is known as a rural district that found itself. Go to the school and you will find a remodelled school-house, and a glance over the class-room will show many things are going on at the same time. There is a buzz, but it is the sound of orderly industry. The clock strikes, and the classes pass to their seats. The girl leaves the type-writer and another takes her place. The sewing-machine changes hands. There is a piano in the room, and somewhere about is a work-bench equipped with tools which cost little but are worth everything to the boys. There is also a cooking-outfit including twenty articles with which the girls carry on their domestic-science work.

"‘We have socialized our school,’ said one influential patron, ‘We never knew what it was to have educational advantages in the district until we socialized it.’”

Examples like this might be cited and multiplied from every county in the state. They might be multi-

plied by thousands, if one could get the facts from the numerous rural schools of the new kind that are spreading as though by some sort of beneficent contagion all over the United States.

Dr. P. P. Claxton, Commissioner of Education for the United States, points out that the problems confronting the farmer of to-day are enormously complex by reason of the vastly greater complexity of the machinery with which he works—as compared with that which his father worked—the keener commercial competition into which he is forced, and the necessity for specialization. Book-keeping in banks, factories and shops is a very simple thing compared with farm book-keeping. There is more bacteriology in farming than in medicine; more chemistry than in pharmacy; more botany than any school course gives; more manual training than is given anywhere outside the technical schools—and all these things are woven into the web of life.

The new rural school is devoted to the matter of getting an education out of life. The development of the efficiency of our rural communities to the highest percentage will be a world phenomenon second only to a similar uplift in the teeming rural population of Russia. I should not favour it, if it had to be done at spiritual or intellectual sacrifice; but it will bring illimitable gains, both spiritual and intellectual. An immense ground-swell of culture will come with this rural renaissance because of the germinal power of truth and the happiness people get from the search for truth. Book learning runs out between the fingers of the ordinary man like sand; it is only to the unusual mind, to which literature is an end and not a means, that our present system of schools adequately ministers. Such minds are sometimes among the most precious gifts to the race, but they have had too much to say about how other minds should be trained.



## PART IV

### Special Contributions, Reports of Agricultural Organizations, Notes and Publications

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#### EXTENSION WORK IN THE UNITED STATES

**I**T was a Chinese philosopher who said: "The well-being of a people is like a tree; agriculture is its root, manufactures and commerce are its branches and its life; but if the root be injured, the leaves fall, the branches break away, and the tree dies." The importance of farming could not be more aptly designated. All the world over to-day this is being more and more recognized. The man with the hoe, or behind the plough, is equally as important, and far more necessary, than the man behind the gun. In peace as well as in war he is invaluable, and is, as he must be, always with us.

Within the last quarter of a century agriculture has made enormous strides in advancement. Previous to the establishment of specialized colleges, which are really a modern innovation, dating back in rare instances to more than half a century, tillers of the soil and breeders of cattle were left almost entirely to their own resources. The most encouragement that was given them was through fairs, exhibitions and local shows. Now all is changed, and state is vying with state, province with province, and country with country, in efforts not only to secure the best results in agriculture, but to bring the boys and girls up with a knowledge of, and love of, the pursuit to which their parents have devoted their lives. Nor is that all. Women are being given an equal opportunity to profit by research and scientific experiments in the branches of farm life and culture that they have specialized as their own. Household and economic science have taken close rank with agricultural progress.

To the advancement of the foregoing order of things governments are devoting energy, time, money and extra consideration. Every session of every legislature, state, provincial and national, sees acts and measures passed looking to the further development of agriculture. Canada, through the Agricultural Instruction Act,

and in other ways, is endeavouring to do her share and is annually devoting a sum that in recent years has grown from a few hundred thousand to as many millions of dollars. In accomplishing this she has invariably been either alongside or in advance of her neighbours. Especially is this true of the extension work that has been undertaken, and has rapidly developed in recent years—work in short that is intended to bring the college to the farm, not so much for the benefit of the grown-ups as for the advantage of the young, of the immature, whose education is thereby advanced and their hold upon the soil enhanced.

#### CARRYING THE COLLEGE TO THE FARM

In the United States, within the last dozen years, there has been a great awakening, more particularly in extension work. As far back as 1862 Congress took steps by grants of land and, later on, by subsidies, to encourage the establishment and maintenance of agricultural colleges, but no single action was ever taken of more significance, and, next to the establishment of the colleges themselves, of more importance, than the passing of what is known as the Smith-Lever bill providing for the inaugurating of co-operative agricultural extension work between what are known as land-grant colleges—colleges established in each state through the medium of the land grants made in 1862—and the Federal Department of Agriculture at Washington. By this bill there was provided a sum, which, starting at \$480,000, would be increased by \$300,000 for each of ten years, by which time the sum to be distributed in grants to the states for the work desired will amount to \$3,480,000. This graduating sum is allotted on the principle of population, with the proviso that, over and above a free grant of \$10,000, each state must devote to the same purposes, a like amount to that received from the

federal grant. The increases of allotment year by year are thus not only dependable in size on the growth of the aggregate central grant but also upon the willingness of the different states to devote an amount corresponding to that received. How this works out is proven by the experience that will be of Pennsylvania. In 1914 that state received \$10,000 and, in 1915, \$46,900. By the proportionate increase every year the grant will reach \$262,150, which, added to a like amount from the state, less \$10,000, means that \$514,300 will be available for extension work.

With the foregoing explanation of the recent impetus given in the United States to extension work—of carrying the college to the farm—a glance can be taken at the manner and character of the work that is in progress in the principal states, among the most progressive of which are the aforementioned Pennsylvania, and Massachusetts, Kansas, Iowa, Ohio, Illinois, Florida, and Minnesota. In many respects the work is of the same nature in each state, comprising winter and summer courses, short courses, rural schools, visits to farms, demonstration trains and correspondence courses. The last mentioned is particularly featured in Massachusetts, but the other methods are common to all.

### LANTERN SLIDES AND MOVING PICTURES

It was in Denmark that the extension and co-operative principles in farming first made pronounced headway and it was upon the example of that country that the Massachusetts Agricultural College, situated at Amherst, founded its first experiments in similar work. Lecturers are supplied free with lantern slides and moving pictures, to any farmers' institute, club, or other organization that charges no admission to its demonstrations. For this purpose a list of thirty lecturers is maintained. The establishment of boys' clubs in different branches of breeding and cultivation is encouraged. How great has been the success of these organizations is proven by the fact that inaugurated in 1908 with half a dozen clubs and a few hundred members, in 1914, or in six years, the clubs had multiplied to such an extent that they numbered upwards of 70,000 members, all of whom were receiving elementary education in agricultural subjects, and to encourage whom the state Board of Agriculture grants \$1,000 for prizes.

The short courses held in Massachusetts include: 10 weeks' winter course, January 6th to March 13th; apple-packing school, January 21st to 28th; farmers' week, March 16th to 20th; tree wardens' school, March 24th to 27th; Polish farmers' day, March 26th; beekeepers' course and convention, date selected; summer school of

agriculture and country life, June 30th to July 28th; poultry conference, July 22nd to 24th; boys' agricultural camp, second week in July to second week in August, and conference of rural community leaders, July 28th to 31st. Of course these dates, not being of a fixed character, are only approximate. Courses are also held for fertilizer agents, feed agents and dealers, milk inspectors, seed dealers, and there is a special day for foreigners.

### A CORRESPONDENCE SYSTEM

The most noteworthy activity of the agricultural college is in the comprehensiveness of its correspondence system. Inquiry is invited on agricultural education, literature and organization, Babcock testing, bacteriology, breeders' organizations, chemistry of foods, fertilizers, their composition and use, civic betterment, clearing land, community organization, co-operation, crops under glass, dairying records and improvement associations, diseases of live stock, drainage, drinking water, farm book-keeping, building, sanitation, crops, irrigation, machinery, management, managers, feeds and feeding, field crops, floriculture, forestry, fruit culture, gardeners and florists, greenhouse construction and management, greenhouse crops, grass, meadows, hay-making, identification of plants, insects and insecticides, landscape gardening, live stock, manures, market gardening, marketing farm products, milk problems, nursery work, orchard management, plant breeding, plant diseases, poultry, purity of seeds, rotation of crops, rural credit, economics, sanitation and social conditions, schools of agriculture, selection of farms, small fruits, soil composition, special crops, spraying, statistics of agriculture, stock breeding, storage of fruits and vegetables, tillage, trees, tree diseases and veterinary science. In carrying on the system advice is given on the text books required, which are supplied by the college if desired, as well as record blanks, account blanks, demonstration sheets and contracts, individual cow record blanks and herd summary sheets. Co-operation is invited with all societies and organizations, state and otherwise, having the promotion of agriculture or the improvement of house and home in view.

Not only are bulletins on special subjects and on every branch of agriculture and household science distributed free but a monthly leaflet is published entitled, "Facts for Farmers," containing timely information on fruit growing, dairying, animal husbandry, bee-keeping, soils and other agricultural subjects. Travelling libraries are maintained and the boys and girls are encouraged to play games, and, with the adults, to join in picnics.

The first step towards taking advantage of the correspondence system is to apply

for an enrolment card. This being filled out is returned to the supervisor of correspondence courses, together with the registration fee of one or two dollars for whatever courses it is desired to take up. Upon receipt of the card and fee, the applicant is enrolled as a correspondence course student in the records of the extension service. Correspondence work is discontinued between June 1st and October 1st. There is no restriction to age, race or nationality.

### CONVENTIONS ARE ENCOURAGED

Pennsylvania's extension work is very much the same as that of Massachusetts. The winter course, however, consists of twelve weeks extending from the first week in December to the last in February. Farmers' week is from December 28th to January 2nd, during which 150 lectures on agricultural subjects, fruit-growing, floriculture, landscape gardening and home economics are delivered to an average registered attendance of from 900 to 1,000 people, representing nearly every one of the 67 counties in the state. The college encourages and inaugurates conventions of every kind, placing the entire 1,400 acres of which its grounds consist entirely at the service of visitors, who are induced to take advantage of the privilege by the running of special excursions. Cow-testing associations, breeding associations, farmers' institutes and clubs, co-operative and syndicate associations are worked with and developed by the free loan of instructors, lecturers and demonstrators. A farm bureau under the direction of an agent has been established in every county. Funds for these purposes are derived from the college, county, state and national governments and the railroad companies, the latter of which also supply demonstration trains.

It would be idle to go over the states singly for they all give extension work in connection with the state agricultural college, which invariably is either actively associated with, or an actual part of, the state university. In instances, however, certain branches are made special features of, after the fashion of Massachusetts in its correspondence system, which other states, like Illinois, Ohio, Iowa, Maine, Indiana, Kansas, Kentucky, Minnesota, Florida, New York, also have, but without the same impressive development and completeness.

### READING COURSES

In New York the state college of agriculture is in affiliation with Cornell University at Ithaca. The winter course has been an established institution for 22 years and extends from the second week in November to the second week in

February. A special one week course is held the second week of March for managers of cheese factories and creameries. A Jewish Agricultural and Industrial Aid Society is an active force. This association is designed mainly to give the children of Jewish farmers a chance to attend college, a numerous series of free scholarships being given with this end in view. The course of study is of the customary character, including all subjects common to the farm, dairy, vegetable gardening, etc., including laboratory work, cow judging and testing, and veterinary hygiene. A specialty is made by the state college of reading courses, which are divided into two sections, one devoted to the farm proper and the other to the home. These are carried on in correspondence form. Lecturers and demonstrators are provided to any farmers' institute or club agreeing to pay half the travelling expenses. An extension school is established in any part of the state on forty or more persons who propose to attend, paying a fee in advance of one dollar. Travelling schools on trains are established, stops being made by arrangement. Moving pictures are also utilized.

### COMMUNITY CENTRES

An additional specialty of New York state is the advancement of what are called "community centres." These are largely fair grounds that are kept open all the year round, the land being used for organized cultivation purposes and the buildings for demonstrations and lectures, when the weather or circumstances do not permit of outside work.

Maine agricultural college has been engaged in extension work for only three years, and comprises both short and free correspondence classes. Lecturers and demonstrators are freely sent to any agricultural or household science society or club. Boys' and girls' clubs and co-operative organizations receive every encouragement. A short winter course extends from the first week in January to the third week in February. A summer course is also held in July. A free monthly publication entitled, "Timely Help for Farmers" is circulated.

Kansas state agricultural college divides its extension work into three classes—reading courses, extension courses and college credit courses. For the reading courses the fee is one dollar for five lessons. For the extension courses, which consist of from ten to sixteen assignments, a fee of \$3 is charged. These courses extend to subjects which usually come under the head of manual training or technical school work. The credit courses consist of from fourteen to twenty assignments, for which a fee of \$4 is payable. All these courses



are open to residents outside the state on payment of double fees. An extensive correspondence course is maintained. It is limited to one year and to people having a common-school education above the age of 14. Members of boys' and girls' clubs are awarded prizes by the college for garden work in agricultural competitions and for success in household topics. Community Welfare Clubs are particularized institutions of Kansas.

Superintendent Bryan, of the Extension Division of the Kentucky state agricultural college, figures that of 20,000 of each bulletin sent out by the state only one in a hundred reaches a person that should apply for them and that of the one in a hundred only a small percentage read and digest the bulletins. Consequently it is imperative that ocular demonstrations taking the subjects up to the farmers' own doors should be given. Extension service, he says, is a potent worker for good to the community. Farmers' week is always the second week in January, when all kinds of conventions, accompanied by exhibitions, are held.

#### AWARDS OF MERIT

Utah conducts a novelty in its extension work, consisting of a system of all-round championships and sweepstake championships, for which all prize winners are eligible and clasps and medals are awarded. There is also an All-Star Club, the members of which are entitled to wear a special cap, and must be all championship winners. In Utah there are special clubs for every branch of agriculture, gardening and home economics. Utah has agriculturally taken for its maxim: "Better the Best."

Minnesota agricultural college in 1914 devoted \$116,960 to extension work. Each county made an allotment of \$1,000 and the state made a corresponding grant to each county. This was in addition to the grant received on account of the Smith-Lever bill. Publications in connection with the work are issued fortnightly and monthly.

In Wisconsin extension work cheese and butter are specialized. In Wyoming, Arizona and other western states live stock breeding is the particular feature. In Indiana, extension work is strenuously prosecuted and attracting much attention, as is proven by the fact that at 18 short courses in 1913 the average attendance at each was 569 and at 20 similar courses in

1914 the aggregate attendance was 14,020, an average for each of 701. At the farmers' institute meetings held in every county the average attendance at each was 162.3, the aggregate being 225,496. The extension staff consists of a board of trustees and an advisory committee. Every county has its agent. The short-course season extends from November 18th to March 14th. Business men as well as college, county and state subscribe liberally to the support of the boys' and girls' clubs. Educational trips are of frequent occurrence, and are always accompanied by agricultural experts, lecturers and demonstrators.

#### WORK IN THE SOUTH

In Florida outside or extension work is making great headway. The Farmers' Co-operative Demonstration branch of the Department of Agriculture has entered into co-operative arrangements with the extension division of the university and by means of county agents, demonstrators and lecturers much good is being done. In north and west Florida attention has been devoted mainly to cotton and corn, but the importance of live stock and forage crops are being emphasized. In southern Florida the work is more diversified, the citrus industry alone running to eight million boxes. Short courses are held and all the other branches of extension work diligently prosecuted.

In Virginia, Georgia and Alabama, not only are there extension services for the white population but special attention is paid to the education, in agricultural subjects, of the coloured people. The Hampton Normal and Agricultural Institute of Virginia, devoted exclusively to negroes and Indians, has 1,309 students. Short courses are held, including a summer course from June 16th to July 14th, or thereabouts, with extra classes for boys and girls. Farmers' conferences, for both men and women, constantly take place. All the states have their district or county agents. In Alabama, the Tuskegee Normal and Industrial Institute, established 34 years ago for the higher education of the coloured people, has an endowment fund of over three million dollars. Extension work in agriculture is extensively carried on. In 1909 boys' corn clubs were inaugurated with an enrolment of 269 members. Three years later the membership was 10,894 and in 1914 was upwards of fourteen thousand, all white.



## ALFALFA ON THE CANADIAN PACIFIC RAILWAY FARMS

BY DR. J. G. RUTHERFORD, SUPERINTENDENT OF AGRICULTURE AND ANIMAL INDUSTRY

THE various alfalfa fields on the farms of the Canadian Pacific Railway Company have come through the winter in an exceedingly satisfactory condition.

In the Lethbridge and Coaldale districts there has been no winter killing whatever and the stand of alfalfa is excellent not only on the older fields but on those seeded last year. In Coaldale we have 700 acres sowed last spring and now showing a magnificent stand, promising a heavy crop for the coming season.

At Strathmore, both on our own farms and on those of the many settlers now growing alfalfa, there has been little or no winter killing. Fields sown both with and without nurse crops are in excellent condition.

In the Keoma district only one case of winter killing is reported, and although I have not yet had time to investigate the cause in this particular instance, I hope to be able to do so in the near future.

In the Bassano and Brocks districts, which are both in the eastern section of the irrigation belt, all alfalfa wintered well, none having been killed out. The stand is excellent and the prospects good.

In the Bassano Colony there are a number of fields, which, contrary to the accepted theories, were put in on new breaking under irrigation and these have also done well. In this connection, however, it is only right to say that the people who planted in this way were settlers from

Colorado who thoroughly understood the growing of alfalfa and the use of irrigation water. Needless to say they spared no pains in getting their land in the best possible shape before seeding.

With regard to varieties, I may say that in the Strathmore district, Turkestan alfalfa, grown from seed sold by the Canadian Pacific Railway Company in 1912, has proved to be admirably adapted to the district and the conditions found there. It has shown itself very hardy and well suited to the climate.

Some Grimm alfalfa sowed at the same time has also done well. Both of these strains sown last season on the experimental plots at the Demonstration Farm have wintered well but, if anything, the Turkestan variety seems to have a stand and to be generally more promising.

As a rule alfalfa is sown in this province without a nurse crop but even when sown with a nurse crop the results are generally quite satisfactory when the soil and cultivation conditions have been given proper attention.

The alfalfa crop throughout Alberta is generally believed to be at least two weeks in advance of what it was at this time last year.

To sum up the situation the outlook for the profitable growing of alfalfa in Alberta is very bright and although it may be a little early, to speak with absolute certainty regarding all districts, we have so far nothing at all discouraging to report.

## AGRICULTURE AND THE WAR

THERE is a great satisfaction in the growing recognition of the part that rural activities play in the economy of our national life, and at a time such as this the needful lessons are perhaps driven home to our minds in a clearer way than would have been otherwise possible.

The part that agriculture is playing in this war is of primal importance. I can only touch in the briefest way on some of the phases of this great question. Without adequate food supplies war could be impossible and it becomes a vital thing to us to consider the relation of food production to the success of those millions who are fighting our battles. War is a great destroyer of food. In that small, heroic and ill-starred country which has borne the

brunt of this great conflict—Belgium—there has, for twenty years past, been a new spirit breathed into her rural life and for a population of 589 persons to the square mile she was, by skilful methods and a fine thrift, doing a work on her farms that was little short of marvelous. To-day the most conservative estimate that could be placed on the ruin to her farms and farm houses would not be less than \$500,000,000. France, with an equally fine intelligence and energy, produces more wheat on her comparatively small territory than do our Prairie Provinces combined. Russia, which ordinarily has produced nearly one-quarter of the world's wheat, has drafted millions of its workers into the field of battle. Hungary, whose average production has been

145,000,000 bushels of wheat, or practically the same as our own three Prairie Provinces produced last year, is given up to the turmoil and tramp of armed men. In all lines of agricultural production these countries must feel the pressure and pinch of war.

To-day, so keen is the true appreciation of these things that in the last month ploughing and planting have been going on in France to within a mile of the British trenches—old men and boys ploughing, while women do the sowing. Sir John French arranged that none of his army should encroach on farm land, except under most urgent necessity, and to trample ploughed land was an offence that had to be explained at the British headquarters. Reviewing a part of the forces which had participated in the battle of Neuve Chapelle, General French rode to where the men were drawn up in small bodies. "I can ride around and meet them," he said, "I would rather do that than spoil a wheat crop."

#### SHOULD STRAIN TO PRODUCE

Surely, then, it is for us, with our broad acres, with peaceful freedom to do our work, to strain all our energies to produce those things which are vital necessities to those who are fighting for the defence of our institutions and liberties.

We can rejoice in the fact that the men of Canada are strongly responsive to this great appeal and that to-day we have reason to believe that the yields of the farms of Canada will be this year the greatest in the history of the country. My reports from our great West are deeply gratifying. The acreage sown is at least 20 per cent greater than before, but this is only one feature. The soil itself has been

prepared with far greater care and intelligence. In the southern districts of Alberta and Saskatchewan, where drouth did so cruel a work last year, there is a greater amount of moisture in the soil than at any time on record, and, with favourable conditions, I see no reason to doubt the production of the biggest grain crop in the history of Canada.

If bigger crop and higher prices bring fuller encouragement to the farmers of Canada, it may be hoped that the lesson will also come which will put agriculture and other industries on a sounder basis than before. We have to learn to do something more than to spend \$2.00 to produce \$1.90. We have to eliminate waste and to grasp the eternal truth that it is only intelligent and thorough work which pays in agriculture, or in anything else.

If we are to strengthen and swell our rural population, it is obvious that we must make farm life not only healthy and happy, but profitable, and we believe that no better service can be given in this respect than the strengthening of agricultural education all along the line. Let a boy or a girl be once interested in the study of the problems of nature and the battle is half won. We can link the great forces of nature to our own efforts only when we understand them. It will be a happy day in Canada, not only for rural, but for our city life, when we realize that agriculture can not only be made profitable, but that it enlists the highest powers of the mind and can yield in the fullest measure that true joy which comes from the application of intelligence to the problems of life and growth which wait for solution in the fields around us.—*Extract from address of Hon. Martin Burrell, Minister of Agriculture, delivered before the members of the Canadian Club, Hamilton.*

#### THE SITUATION IN AUSTRALIA

ADVICES from Australia reveal an appalling state of things consequent upon the drought. The Riverina district in South Australia has lost 8,000,000 sheep and Victoria 3,570,000 sheep, 240,860 beef cattle and 131,188 dairy cattle. For these two districts the loss in cattle and sheep runs in value to \$53,635,542. Two-thirds of the settled area of Australia are said to be bare of vegetation. In the Riverina district in ordinary circumstances about 10,000,000 sheep are carried. On March 20th this year not more than 2,000,000 were to be found there, and these were so weak that many were rapidly dying. The ground had become so hard that it was almost impossible to get the plough in. Six horses fed on chaff at \$50 per ton, were required to

do the work of four. Even if rain were to fall plentifully there would be a shortage in the wheat area of a million acres, as there were no hopes of sowing more than 1,500,000 acres under the most favourable conditions.

This very grave situation surely emphasizes the responsibility that looks likely to fall upon Canada to supply not alone the allied countries of Belgium, Great Britain, France and Italy, with foodstuffs but other parts of the world as well, including other parts of the empire, whose call will of course be as loud as any. In fact, with an open route across the Pacific, it is to this country essentially that the sister colony will turn for such supplies as she most needs.

## VACANT LOT GARDENS IN OTTAWA

**A**S an outcome of the Patriotism and Production campaign the gardening of vacant lots has become well established in Ottawa. Although the work was not commenced until late in the season, a large number of plots are being put into potatoes and other vegetables. The land being used is what is known as the Glebe property owned by the St. Andrew's Church of the city. At the instance of Mr. W. T. Macoun, Dominion Horticulturist, the trustees of this property have thrown it open for the use of poor families and those in moderate circumstances. The land, which is in one block, has been divided into one hundred and twenty-

at the back of his plot, so that the potato plots can all be easily reached by the sprayer which the trustees have provided. The Grand Trunk Railway Company have given the use of two old box cars, in which the implements used in the cultivation and working of the plots will be kept. The city is providing water and sanitary closets. Night and day watchmen are being provided by the trustees. Following are the by-laws governing the free garden plots:—

- (1) Plots on which cultivation had not commenced on May 25th were liable to confiscation.



OTTAWA VACANT LOT GARDENERS AT WORK

eight plots, most of which are one hundred by fifty feet. For these one hundred and twenty-eight plots one hundred and seventy-three applications have been received. Many others would be made if the land were available. Much of the land has already been planted and the gardeners are most enthusiastic.

The trustees of the property have provided sufficient funds to have the work carried out properly. Besides laying out the land with roads and paths, the trustees have had it ploughed and harrowed and have even gone so far as to remove clumps of small trees in order to satisfy, as far as possible, the demand for plots. Provision is being made that every gardener who wants to raise potatoes, must grow them

- (2) No crops shall be sown or planted on plots within two feet of any boundary
- (3) Where potatoes are planted they must be placed at the back end of the lot.
- (4) A reasonable amount of care in the cultivation is expected, otherwise plots are liable to confiscation.

Arrangements are being made for the holding of a competition for which prizes will be offered, in accordance with the plan described on page 210 of the March number of THE AGRICULTURAL GAZETTE.

The committee in charge of this work is composed of Mr. W. T. Macoun, Dr. Jas. W. Robertson, and Gilbert Allan, secretary.



## GOOD SEED IN DEMAND

**I**NQUIRY as to whether there has been any increased demand for pure seed has elicited a number of replies showing that there certainly has been. In the absence of Professor C. A. Zavitz, who was in California, Mr. W. J. Squirrell, the associate professor at the Ontario Agricultural College, has furnished a table indicating that there has been a decided increase in the request for barley, spring wheat, field peas, alfalfa and field beans. This table shows an increase compared with last year all down the line except in only a few instances. Fall turnips show a decline and so, too, does sweet corn, and others, like spring rye, mangels, grass peas, rape, kale and field cabbage, are stationary. On the other hand all varieties of barley, especially hullless, exhibit an increase from 196 to 254, while spring wheat has gone from 82 to 205, field peas from 203 to 353, buckwheat from 27 to 46, spring rye from 32 to 43, husking corn from 178 to 205, sugar beets for feed purposes from 65 to 79, Swedish turnips from 53 to 73, carrots from 64 to 79, fodder and silage corn from 42 to 56, sorghum from 12 to 25, alfalfa from 195 to 236 and field beans from 108 to 226. Slight increases are made by oats, namely, from 654 to 660, soy, soja or Japanese beans from 35 to 42, millets from 13 to 18, four varieties of grasses from 15 to 21, and three grain mixtures for grain

production.

Seed merchants generally report equally as gratifying results. They all agree that the tendency is towards using the higher grade seeds. They also bear testimony to the good effect the recent campaign for better production has had in that direction. Nor does the improvement appear limited in its scope. It covers not only grain but also all sorts of garden and field root seeds. Several firms notice a large increase in red clover this year compared with last, one who say they have gone thoroughly into the subject, declare it amounts to as much as three hundred per cent. Alsike, alfalfa and No. 2 timothy also show an important advance. Another firm testifies that there has been a marked tendency for better seed. Yet another says that "not only has the farming been greater, but the demand has been generally for the finest selection of seed stocks." A Fourth firm writes: "There is no doubt but that the agitation and educational work which has been done has had a beneficial effect, causing the planter to give more thought to the use of high grade stocks." Similar evidence both as regards the disposition to take increased care in the selection of seed, and as to the good influence exercised by the recent campaign, come from divergent parts of the country, from in fact all the main centres.

## NOTES ON CROP PROSPECTS ABROAD

**T**HE Bulletin of Agricultural and Commercial Statistics for March, 1915, gives figures which may be taken to represent the world's production of cereals in the harvest year 1914-15. The countries included are Germany, Austria, Hungary, Belgium, Bulgaria, Denmark, Spain, France, Great Britain and Ireland, Italy, Luxembourg, Norway, Netherlands, Rumania, Russia in Europe, Sweden, Switzerland, Canada, United States, India, Japan, Russia in Asia, Algeria, Egypt, Tunis, Argentina, Chile, Australia, and New Zealand.

**Wheat.**—The total production in the above-mentioned countries amounted to 460,900,000 qrs. against 501,520,000 qrs. in 1913-14, or a decrease of 8.1 per cent. The production, however, was greater by 0.7 per cent than the average production of the five preceding years, and by 7.5 per cent than the average of the 10 preceding years.

**Rye.**—The production in the above countries, excluding Great Britain, India, Japan,

Algeria, Egypt, Tunis, Chile, Australia, and New Zealand, is placed at 203,159,000 qrs. against 218,013,000 qrs. in 1913-14, or a decrease of 6.8 per cent. It was also smaller by 0.4 per cent than the average of the five preceding years, but greater than the average of the 10 preceding years by 5.5 per cent.

**Barley.**—For the same group of countries with the exception of India, Chile, and Australia, the production is estimated at 168,293,000 qrs. in 1914-15 against 193,168,000 qrs. in the previous harvest year, or a reduction of 13 per cent. It was also smaller by 5 per cent than the average of the five preceding years, but greater by 2.6 per cent than the average of the ten preceding years.

**Oats.**—For the same countries as aforementioned, omitting India, Egypt, Chile, and Australia, the total production is placed at 441,600,000 qrs. against 490,330,000 qrs. in 1913-14, or a diminution of 9.9 per cent. It was also smaller than the average of the five preceding years by 2.7 per cent, but



greater than the average of the ten preceding years by 6.2 per cent.

India.—The preliminary estimate of the wheat crop places the production at 48,986,000 qrs. in 1914-15, against 39,315 000 qrs. in 1813-14, or an increase of 24.6 per cent, while the area cultivated was also greater by 23 per cent.

Sowing of winter cereals.—The areas estimated to have been sown to cereals in 1914-15, compared with the areas sown during the corresponding period of 1913-14, expressed as per centages, are as follows:—Wheat.—Denmark, 103; Great Britain, 110; Italy, 105; Luxemburg, 107; Rumania, 92; Switzerland, 110; Canada, 109; United States, 111; Japan, 99. Rye.—Denmark, 93; Luxemburg, 106; Rumania 76; Switzerland, 110; United States, 103. Barley.—Rumania, 71; Switzerland, 105; Japan, 102.

France.—The official report on the condition of the crops in France on 1st March is as follows:—Winter wheat 68 as com-

pared with 71 in 1914, rye, 72 against 73, winter barley, 69 against 69, and winter oats 70 against 66 in 1914 (110—very good 80—good, 60—fairly good).—London Grain, Seed and Oil Reporter, 24th March.

Australia.—The latest official estimate of the wheat harvest in the six Australian States gives the yield at a little more than 29½ million bushels, as compared with 108 million bushels in 1913, and 96 million bushels in 1912.—London Grain, Seed and Oil Reporter, 11th March.

England and Wales.—Owing to rain and frost the season is rather backward. Flocks and herds are generally healthy, but in localities the fall of lambs has been light. The total area under wheat is about 10 per cent greater than last year. On April 1st, early sown wheat on light land was looking well, but in many districts wheat on heavy land and late-sown autumn wheat on light land was backward and had lost colour. Labour is deficient, although wages show a tendency to rise.

## AGRICULTURAL ROLL OF HONOUR

THE following list contains the names of the graduates, under-graduates and students of the Canadian colleges and schools of agriculture and of veterinary science, and of the officials of provincial departments of agriculture who are members of Canadian overseas or Imperial forces:—

### COLLEGES AND SCHOOLS

#### NOVA SCOTIA AGRICULTURAL COLLEGE

Blanchard, B.; Boulden, Eric; Butler, E. A.; Bragg, Paul.  
Collingwood, Gordon; Chipman, Don; Cunningham, Gordon; Cunningham, J. L. Donaldson, Ralph.  
Frier, Arthur M.; Fairweather, H. B.; Filmore, W. R.  
Holman, Douglas B.; Hoyt, J. H. Kelsall, A.  
Landels, James; Lewis, Rundall; Leak, Charles F.  
McCharles, M. J.; McIvor, J. H.; McMahon, A. E.; March, Dudley.  
Peterson, Clyde.  
Robinson, Milton; Robertson, W. G. Sircom, George; Shipton, I. C.; Saunders K. H.; Smith, Clarence.  
Weldon, A. H.

#### LAVAL VETERINARY SCHOOL, MONTREAL

Chagnon, Lieut. J.  
Duhault, Capt. B.; Dagneault, Capt. A.; Desmarteau, W.B.

Grignon, Lieut. R.; Guertin, Lieut. A. T. Piché, Lt.-Col. M. A. Souillard, Capt. P. P. Trudel, Lieut. H. A.

### MACDONALD COLLEGE

Ashby, P. H.  
Bailey, Hugh R. D.; Black, Charles; Buckland, W. B.; Brighton, H. W.; Bailey, H. C.; Boulden, C. E.; Brunt, John W.  
Critchley, Walter R.; Cowper, Hugh S.; Collingwood, G. F.  
Dreher, C. F. W.; Drouin, J. E. Evans, H. I.  
Flood, R. R.  
Hamilton, Richard I.; Huestis, Ralph R.; Hill, G. M.; Heslop, Fred H. Lothian, David E.; Lefebvre, J. G.  
Matthews, Albert E.; McClintock, Corp. L. D.; MacFarlane, John R. N.; Montgomery, Arthur R.; Milne, A. R.; McMahon, E. A.; McCormick, J. H.; McKechnie, H. E.; Mitchell, H. D.; MacFarlane, N. C.  
Piddington, Arthur G.; Peterson, W. J.; Peterson, C. F.  
Robinson, James Milton; Richardson, J. J. G.; Roy, Trooper J. S.  
Smith, W. J.; Signoret, Sgt. Major M. C.; Smillie, Henry M.; St. George, Percival T.; Spendlove, J. R.  
Turner, William H.  
Viane, Edgar.  
Wilson, Charles A.; Walsh, G. Brock; Williamson, H. F.; Wilcox, Charles J.; Young, Lieut. Geo. R.

## SCHOOL OF AGRICULTURE, STE.

## ANNE DE LA POCATIÈRE

Huguenin, M.L.D.; Leboucq, M.  
Robert; Pasquet, Joseph.

ONTARIO AGRICULTURAL  
COLLEGE

Arnold, C. L.; Atkins, J. P. H.  
Brooks, G. F.; Bagsley, H. E.; Bradley,  
C. A.; Beatty, H. A.; Brown, W. J.;  
Bland, A. G.; Blanchard, B. H. C.;  
Bertram, L.; Bond, J. H. M.; Burnett,  
R. T.; Barrett, H. H. G.; Baker, F. H.;  
Birdsall, F. E.; Bell-Irving, A.

Chester, W. M.; Christie, H. F.;  
Chamberlain, C.; Clarry, A. G.; Cory, A.;  
Carpenter, G. H.; Coke, E. F.; Cherry,  
P. A. B.; Clark, T. O.; Cleeves, A. C.;  
Campbell, A. M.; Cleverley, A. C.; Camp-  
bell, H. D.; Caldwell, L. V.; Campbell,  
J. W. R.; Chauncey, R. J.; Campbell,  
Walter N.

Dickson, N.; Donaldson, E. R.; Dow,  
N. D.; Donaldson, R. W.; Davison, W.;  
Davis, Herb.; Downey, G. A.; Donaldson,  
J. R.

Everett, R. E.; Edye, H. K.;  
Ferguson, P. H.; Foreman, C. F.;  
Fitzgerald, E. F.; Fitzpatrick, A. C.;  
Fairdough, E. R.

Garlick, G.; Grange, J. B.; Goodall,  
G. M.; Golding, N. S.

Hart, E. W.; Harrison, F. C.; Hill, L.;  
Hoodless, J. B.; Hessel, E. C.; Hudson,  
H. F.; Hockett, H. C.; Hextall, L. J.;  
Hartley, R. S.; Hirst, G. S.; Hearle, E.;  
Holmden, R.; Hammond, W. S.; Herder,  
H. C.

Innes, R.; Iwanami, J.  
Jordon, M. D.; Jones, M.; Jensen, E.  
Kennedy, S.; Kedey, W. M.; King, V.;  
Knight, C. F.; Keegan, H. L.; Kelsor,  
M. U.; Kirkley, F. R.; Knowles, F. G.

Leach, W. B.; Lawrence, C. A.; Lewis,  
R. M.; Lattimer, E.; Lord, S. N.;  
Leppan, H. D.; Lindsay, H. H.; Lever,  
J.; Lee, G. D.; Loghrin, Samuel.

Murray, W. J. R.; Macdonald, R.;  
Murray, Robt.; Mosley, L. A.; McGuire,  
M. E.; McLaren, Q.; Mollison, R. W.;  
Millar, G. C.; Murray, H. G.;  
McClymont, A. C.; McEwan, C. F.;  
Nourse, C. B.; Neilson, M. A.; Neal,  
C. W.

Orlowski, A. J.  
Packham, S.; Pearson, H. W.; Percival,  
S. E.; Peren, G. S.; Pratt, W. J.; Phillips,  
H. L.; Pereira, A. O.; Parker, G. B.

Read, D. G.; Rogers, C. H.; Rogers, S.;  
Rogers, C.; Rumsby, R.; Ryan, K.

Sampson, H.; Sanderson, C. E.;  
Seymour, C. N.; Smedley, G.; Stones,  
J. G. K.; Steele, J. A.; Sipton, J. S.;  
Stansfield, N.; Scott, Maxwell; Stairs, K.;  
Smylie, J. S.; Shuttleworth, E. H.

Townsend, W. A.; Thompson, Stanley  
Thompson, G. A.

Unwin, G. H.

Ware, B. W.; Woolley, H. H.; Waters,  
M. S.; Western, E. A.; White, O. C.;  
Wearne, H.; Wilson, N. I.; Woodgate,  
H. A.; Westra, H.; Wilson, S. C.; Water-  
fall, J. F.; Wearne, G. A.

MANITOBA AGRICULTURAL  
COLLEGE

Butchart, Russell; Blows, A. G.  
Cogland, Thomas; Cunningham, R. A.;  
Dyer, Harry; Dyer, Major Hugh M.;  
de Montbel, Andra L.

Ewens, Basil.  
Fee, Charles H.  
Gardner, John; Gladstone, S. D.;  
Glover, Ray.

Harris, R. T.; Hepburn, Leonard.  
James, H.; Jonason, Peter.  
Kerr, Oscar.  
Lamb, C. C.

McPherson, Robt.; McIntosh, J. F.;  
Miller, W.; Muir, Elliott.

Nunnerley, George.  
Robinson, E. R.; Rogers, R. J.  
Shinner, E.; Smith, Harry.  
Worswick, B.; Worrall, Lloyd.

## UNIVERSITY OF SASKATCHEWAN

Anderson, R. W. H.  
Cameron, J.  
Day, G.; Duncan, W. G.  
Fisher, J.; Feenie, C.  
Hampson, T.; Hooper, W. J.  
Matthews, A. F.  
Neatby, A. F.

Partlett, A. E.; Patterson, J. D.  
Porter, T. J.

Quick, L. A.  
West, E.; Whittingham, W. R.

SCHOOL OF AGRICULTURE,  
CLARESHOLM, ALBERTA

Middleton, A. J.

SCHOOL OF AGRICULTURE,  
OLDS, ALBERTA

Burns, Roy.  
Georges-Figaro, Raymond.  
Snider, Donald; Simon, Ralph.  
Whiteside, William H.

SCHOOL OF AGRICULTURE,  
VERMILION, ALBERTA

Shaw, Floyd; Sheppard, William.

ONTARIO VETERINARY COLLEGE,  
TORONTO, ONT.

Brand, W. D.; Baker, C. W.; Blan-  
chard, W. H.; Buie, J.; Bennett, J. E.;  
Bailey, A. E.; Barnes, F. M.; Brand,  
J. M.; Brunet, O.

Coombs, F. M.; Chils, T.; Cunningham, J. R.; Carson, M.; Cunningham, C. G.; Cutcliffe, A. B.; Coleburn, H.; Collett, H. B.

Durkin, L. H.  
Early, F. D.; Ellsworth, L. H.; Evans, T. C.; Elliott, W. J.; Edgett, C. E.

Farrell, J. J.  
Gibson, A. S.  
Hyslop, H. T.; Hall, R. J.; Hayter, G. P.; Hill, W. R.  
Kenney, W. G. C.; Kerr, S. S.  
Laurie, J. H.

McCullough, H.; MacIntosh, R. D.; Morrow, J. J.; McDonald, R. W.; Medd, W. H. B.; McGee, H. E.; McBride, J. Neely, M. J.; Neill, W. J.

O'Gogerty, M. G.  
Perry, F. P.; Pilkey, M.; Parmiter, F. Robinson, P. A.; Rogers, W. T.; Rose, G. A.; Reed, D. V.; Richmond, A. R. B. Stuart, R. M.; Scott, J. D.; Stanford, J. A.

Thornewill, G. S.; Thompson, C. F.; Titus, R. C.

Vickers, J. R.

Wolfe, C. E.; Williams, R. N. M.; Williams, J. E.; Wilson, J. H.; Woods, T. Z.

## DEPARTMENTS OF AGRICULTURE

### PRINCE EDWARD ISLAND

Davison, Wilfred.

### ONTARIO

Amyot, J. A., M.D.  
Brodie, T. G., M.D., F.R.S.  
Curtis, N., Resident Master, Ontario Agricultural College; Connell, W. T., M.D.  
Richmond, A. R. B., V.S., B.V.Sc.  
Saunders, C. G., V.S., B.V.Sc.; Smith, D. King, M.D., V.S.; Shaver, F. D., B.S.A.

### QUEBEC

Comire, Hector.  
Leboucq, Robert.  
Wigny, Maurice.

### SASKATCHEWAN

Carter, George; Cogland, T. W.  
Domaille, T.; Dixon, Alex.  
Macdonald, Daniel.  
Nockett, Walter.  
Sorenson, M. B.; Smith, H. S.

### BRITISH COLUMBIA

Casey, E.; Creese, H. H.  
Payne, F. N.; Paul, A. S.  
Shipton, B.

## SOCIETIES AND ASSOCIATIONS

### ONTARIO

The breeders of the eastern part of Bruce county recently met at Walkerton, Ontario, when they decided to hold a pure bred stock sale in February or March, 1916, at Walkerton, and elected the following officers:—

President, T. H. Jasper, Carlsruhe; vice-president, W. A. Tolton, Walkerton; secretary, N. C. MacKay, B.S.A., District Representative, Walkerton; directors: Jas. Thompson, Mildmay; W. T. Hopper, Paisley; Geo. B. Armstrong, Teeswater; Jacob Millar, Mildmay; Herbert Pletsch, Carlsruhe; Ab. Rowand, Henry Hossfeld, Jas. Moore, Jas. L. Tolton and Jacob Dippel, Walkerton.

### QUEBEC

#### PROTECTION OF PLANTS

The seventh annual meeting of the Quebec Society for the Protection of Plants was held on March 11th at Macdonald College. Papers were read by Mr. J. C. Chapais, delegate to the Entomological Society meeting in Toronto; Mr. E. M. Duporte, for Brother Victorin, of Longueuil College on "Some Silent Invaders of our Fields;" Father Leopold, Oka

Agricultural Institute, on the "Woolly Aphis in the province of Quebec;" Professor John Adams, Assistant Dominion Botanist, on "The Medicinal Plants of Quebec," and on "Potato Diseases," the latter prepared by the Dominion Botanist; Professor Crosby, of Cornell University, on "Some Successes and Failures in controlling Insects," and by Messrs. Strickland and Chrystal, of the Entomological Branch, Ottawa, the first-named on "The Brown-tail Moth in New Brunswick and Nova Scotia," and the latter on "The Ravages of Insects in Stanley Park, Vancouver, B.C.," both with lantern slides. President Lochhead addressed the gathering on "The Webb of Life," showing that all nature was inter-related. Papers by Mr. Duporte on "The Parasites of the Bud Moth," by Mr. P. I. Bryce on "Immunity of Orchard Trees from Disease," by Professor Fraser on "Cereal Rusts," and by Mr. A. F. Winn, of Montreal, will appear in the annual report, but were not read for lack of time.

#### SHEEP-BREEDERS IN SESSION

A meeting of sheep-breeders of Sherbrooke county was held at Lennoxville, Quebec, on March 24th, at which Mr. A. A. MacMillan, B.S.A., who is in charge of



Sheep Husbandry at Macdonald College, delivered an address on "The Co-operative Marketing of Wool." A discussion followed which led to the organization of the "Sherbrook County Sheep-breeders' and Wool Growers' Association," with Mr. A. F. Ward, president; Mr. James Woodward, vice-president; Mr. W. G. MacDougall, secretary-treasurer; Messrs. N. Dean, I. J. Parvell, W. P. Berwick, W. M. Ford, Ed. Hammond and Guy Carr, directors. Demonstrations will be given on the proper methods of preparing wool for the market and the wool will be sent to Lennoxville to be graded and sold.

#### ALBERTA ANNUAL DAIRYMEN'S CONVENTION

The Annual Dairymen's Convention was held at Olds, Alberta, on April 8th. Hon. Duncan Marshall, Minister of Agriculture, being busy with his legislative duties, the Deputy Minister, Mr. George Harcourt, presided. In his opening address, Mr. Harcourt enlarged on the advantages Alberta possessed in the way of products of the dairy. He also alluded to the excellent results derived from the provincial butter scoring contest, the first prize in which was won by the Calgary Central Creamery with a score of 95.02 points in 621 churnings. There were only seven points between the first and third prize winners. It was shown that the estimated value of Alberta's dairy products is now \$10,500,000, that 47 creameries are in operation, and that the yield of creamery butter in 1914 was 5,250,000 pounds, an increase of a million pounds compared

with the previous year. Nineteen creamery operators availed themselves of the marketing service of the Department of Agriculture, prices ranging from 22.61 to 27.15 cents per pound. Prof. W. J. Elliot, Principal of the Olds Agricultural School, gave the results of herd tests. Thirty-four herds were tested, comprising 166 cows, of which 119 failed to finish the test. Forty-eight cows gave 5,000 pounds, or over in the eight months, and 35 gave from 4,000 to 5,000 pounds.

#### CATTLE BREEDERS' ASSOCIATION

The Alberta Cattle Breeders, at the annual meeting recently, elected the following officers for the ensuing year:—

President, J. L. Walters; first vice-president, W. Sharpe; second vice-president, P. M. Bredt; directors: P. M. Bredt, J. L. Walters, Rowland Ness, J. Laycock, J. Sharpe, H. Mace, J. Lattimer, L. Hutchinson, A. E. Shuttlesworth, W. Sharpe, J. Huntley, H. Wright, F. Collicutt, T. P. Lyall, George Lane.

#### HORSE BREEDERS' ASSOCIATION

The following are the officers of the Alberta Horse Breeders' Association elected at the annual meeting of the association held in Calgary:—

Hon. President, Hon. A. L. Sifton; president, George Lane, Pekisko; first vice-president, Dr. J. G. Rutherford; second vice-president, Geo. Hoadley, M.P.P.; general directors: W. B. Thorne, H. Bannister, W. Moodie, Duncan F. S. Jacobs, P. M. Bredt, R. J. Bevan, W. Stuart, and A. L. Dollar.

### NEW PUBLICATIONS

#### THE DOMINION DEPARTMENT OF AGRICULTURE

##### PUBLICATIONS BRANCH

*The Potato*, Pamphlet No. 2, Publications Branch; a reprint of articles that appeared in THE AGRICULTURAL GAZETTE for April, 1915. Further than to say that this pamphlet is literally a monograph on the Solanum tuberosum, that should be widely read and studied, it is not necessary to more than state that the articles are by the most experienced and most practical experts known to Canada and that they cover every province.

##### THE SEED BRANCH

*Weeds and Weed Seeds*, illustrated and described; Bulletin No. S 8, Seed Branch, George H. Clark, Seed Commissioner. In

this 67-page bulletin, the nature and affiliation of no fewer than 114 weeds, 28 of which are classed as "noxious" under The Seed Control Act, 1911, are minutely described with their methods of eradication. Each weed with its seed is illustrated with a deftness and exactitude that if the original is seen it can hardly fail of identification. It is a bulletin that should reach the hands of every cultivator of the soil, for some species of the weeds dealt with attach themselves to some species of the product of farm and garden. In his letter of endorsement to the Minister, Commissioner Clark explains that the bulletin is intended to convey in convenient form the essential matter contained in the extensively illustrated book, "Farm Weeds," of which two editions have been exhausted. Much that is new, resulting from investigation and research by officers of the



Branch, has been added. It is not too much to say that the work has been well and thoroughly prepared, and as far as possible is exhaustive.

### THE ENTOMOLOGICAL BRANCH

*House Fly Control*, by C. Gordon Hewitt, D.Sc., Dominion Entomologist. This is a four-page leaflet of an article comprehensively dealing with the House Fly pest that appeared in the last number of THE AGRICULTURAL GAZETTE—or in No. 5, Vol. 2, May, 1915. It is especially commended to newspapers as dealing with a subject that the general public is quite as much interested in as the farming community, indeed if not more so from being in closer confinement.

### THE PROVINCIAL DEPARTMENTS OF AGRICULTURE AND OF EDUCATION NOVA SCOTIA

*Manufacture of Dairy Products on the Farm*; Bulletin No. 6, of the Nova Scotia Department of Agriculture, by W. A. Mackay, Dairy Superintendent, Truro, N.S. This bulletin is designed to stimulate the dairy industry in the province. It consists of 16 pages, giving general instructions on the caring of milk and on butter making and receipts for making various kinds of ice-cream. Rules for milk and cream testing are also supplied.

*Drainage*; by B. H. Landels, B.S.A., Superintendent of Drainage Department of the Nova Scotia Department of Agriculture; Bulletin No. 7, 34 pages. The bulletin is intended to apply various things which have been written and said to the prevailing conditions in Nova Scotia. The subject of underdrainage is exhaustively dealt with. How water is lost to the soil is explained. Constructive methods of drains are fully set forth in letter press, and by illustration. In short the bulletin is a valuable and instructive compendium on the matter of drainage and the most advisable systems to adopt.

Recent publications from the transactions of the Nova Scotian Institute of Science are, "The Phenology of Nova Scotia, 1912," by A. H. MacKay, LL.D., Superintendent of Education, Nova Scotia, and "Senecio Jacobaea and Callimorpha Jacobaea (The Cattle Killing Ragwort and the Cinnabar Moth)", by Henry S. Poole, D. Sc., of Guildford, Surrey, England. The Department of Education, Halifax, N.S., is circulating with these publications, as an aid to the study of phenology, "Phenological Observations, Canada, 1913," by F. F. Payne under the direction of R. F. Stupart F.R.S.C., and published by the Royal Society of Canada last year.

### QUEBEC

*Completion of Agricultural Merit*, 1914. Report of the judges of the twenty-fifth annual agricultural merit competition of the province of Quebec. The records, all very explicit in detail, are accompanied by well-defined illustrations and diagrams with some account of the properties of the successful competitors. An enlarged table of the points awarded for the various subjects lends appreciable value to the matter.

### MACDONALD COLLEGE

*The Farmers' Garden*, by A. H. MacLennan, B.S.A., Lecturer in Horticulture, Macdonald College, McGill University, Quebec. Professor MacLennan in this 38-page pamphlet inculcates the principle that every farmer should have a vegetable garden. Once having made the venture he would ever have fresh products on his table. Hints and suggestions are forthcoming in every department for the cultivation of such a garden. Illustrations of frames, of hot-houses and of various growths, good and bad, are given as well as tables of the quantity of seeds required, times of planting and of period taken for maturity. Advice is also supplied regarding the care and cultivation of small fruits.

### ONTARIO

A circular issued by the Lambton County Corn Growers' Association gives rules and regulations to govern, and the prizes to be awarded, in the competition for the best four acres of corn grown in the County of Lambton. Besides the Hanna trophy nearly two hundred dollars in cash are to be competed for. Entries were required on or before May 15th.

*Ontario Pure Bred Live Stock Census*. In addition to the returns already noted in the April and May numbers of THE AGRICULTURAL GAZETTE, a report has been received for Bruce county, which gives a list of the breeders of pure bred stock together with the number of animals kept by each, under the classification of breeds, male or female, under one year, under two years, and over two years. The report shows, that while the returns are, more or less incomplete, the county has 256 pure bred horses, divided as follows: Clydesdale 247, Percheron 5, Standard Bred 4; a total of 963 cattle, made up of 46 Aberdeen Angus, 5 Ayrshire, 44 Hereford, 51 Holstein, 8 Jersey and 809 Shorthorn; 1,589 sheep, comprising 294 Leicester, 134 Lincoln, 1,021 Oxford Down and 130 Shropshire; 374 swine, consisting of 36 Berkshire, 12 Hampshire, 13 Poland China, 64 Tamworth and Yorkshire 249.

*Some Results of Co-operative Experiments on Races of Bees to determine their power to resist European Foul Brood* is the title of an eight-page pamphlet by Morley Pettit, Provincial Apiarist. Since 1910 the author has, under the auspices of the Ontario Agricultural and Experimental Union, been directing co-operative experiments with a view to securing answers to the following questions:—

1. Are Carnolian bees as good resisters of European Foul Brood as Italians?
2. What strains of Italians, if any, are better resisters than others?
3. After this disease has been in a neighbourhood a few years, is it more easily controlled?
4. Does it become less virulent or is a strain of better resisters developed?

As the best means of presenting results, a number of letters received from bee-keepers, who co-operated in this work, are given and from them are drawn conclusions, which show that resistance is more a matter of vigour than of race or strain, although the common black bees are proven to be exceedingly poor resisters and that Carnolians are not generally as good as Italians; of these latter, eleven strains were tested but none condemned; the successful honey-producer of the future must keep his queens young and his colonies strong and vigorous; European Foul Brood is not so virulent after having been in a colony for two or three years as it is at first; resistance of bees increases as a result of natural selection, or "survival of the fittest."

*Entomological Society of Ontario*; forty-fifth annual report; published by the Ontario Department of Agriculture; 152 pages. This report of the proceedings of the society in 1914 is especially complete. Last year was the fifty-first in the existence of the society, which was referred to in a particularly interesting and comprehensive address delivered by the president, Dr. Gordon Hewitt, Dominion Entomologist, at the opening of the annual meeting. Dr. Hewitt traced the story of entomology in Canada from its first official recognition in 1856, when the Bureau of Agriculture and Statistics of Upper and Lower Canada (Ontario and Quebec) gave eighty pounds, or \$400, for the best three essays on the Hessian Fly and other insects. He also gave a description of the ravages of the pests in the different provinces and told of the work that was being done both by the Dominion and provincial governments in their suppression. Among other features of the report are reports from different districts and from other entomological societies as well as papers by Mr. W. Lochhead of Macdonald College, Quebec; Mr. C. E. Petch of the Entomological Branch, Ottawa; Mr. Arthur Gibson, Chief Assistant

Entomologist, Ottawa; Mr. A. W. Baker Ontario Agricultural College; Rev. Thos. W. Fyles of Ottawa; Mr. L. Casar, Ontario Agricultural College, and Mr. J. M. Swaine, Assistant Entomologist for Forest Insects, Ottawa. The Entomological Record for 1914 prepared by Mr. Arthur Gibson is presented. Interesting obituary notices with portraits, of Dr. William Saunders, C.M.G., and Mr. H. H. Lyman, of Montreal, the latter of whom, with Mrs. Lyman, was lost in the Empress of Ireland disaster, complete a most valuable and well illustrated publication.

## MANITOBA

A circular to teachers issued by the Manitoba Department of Education contains an appeal from the Chief Game Guardian for the protection of birds, a series of agricultural questions for provincial schools, rules for judging contests and a Gardening Guide. A simultaneously issued circular gives the educational premium list for the Inter-Provincial Fair, Brandon, July 19 to 23. There will be 18 classes in general school work, 13 in manual training, 15 in cooking, 39 in sewing and 11 in drawing and colour work, open to all schools, and 6 classes in general school work and 8 in hand-work open to rural schools only.

## SASKATCHEWAN

The Saskatchewan Department of Agriculture has issued a circular on the "Control of Common Insect Pests." It deals with the potato beetle, cut worm, white grub, cabbage work, plant lice and the wire worm.

A recent Bulletin issued by the live stock branch of the Saskatchewan Department of Agriculture says that choice draft horses show an upward tendency in price, and that there is a strong demand for artillery horses. Cattle show an upward trend. Sheep and lambs are in keen demand and the supply is very limited. Hogs show a slight downward tendency. Wool market is strong with an upward tendency; there has been little trading as yet in the 1915 clip.

## ALBERTA

*Successful Poultry Raising*, by A. W. Foley, Poultry Superintendent, Bulletin No. 3, of the Poultry Branch, Department of Agriculture, Alberta; 80 pages. Mr. Foley has produced not only a comprehensive but a fairly exhaustive publication in a plain way on poultry breeding, raising and dealing. In an introduction he explains that the bulletin has been called for by the large demand for previous publica-

tions of a similar order. Starting with the origin and development of domestic poultry, the bulletin deals with the industry in general and then, with apt illustrations, furnishes suggestions relative to poultry houses and fixtures, commercial poultry plants, establishment and maintenance, egg production, summer and winter hatching, brooding and rearing, fattening, killing and marketing, poultry for exhibition, turkeys, ducks and geese, closing with an enlightening chapter on diseases and parasites.

### BRITISH COLUMBIA

*Instructions for Teachers.* In this 24-page publication giving a general announcement of summer courses to be held in the Victoria, B.C. High School, June 29th to July 30th, special attention, as might be expected, is paid to rural and household science, although vocal music, elocution and applied arts are not overlooked.

*Crop Report, No. 1,* May 10th, of the Horticultural Branch of the British Columbia Department of Agriculture says that the general outlook at present is for a fruit crop slightly in excess of last year. The fruits included in this general statement are: Strawberries, raspberries, plums, sour cherries, prunes, apples and pears. Sweet cherries promise well in the interior, but a decrease on the coast. Peaches bid fair to be exceptionally abundant. Crab apples look like a decrease.

### MISCELLANEOUS

The United States Department of Agriculture has issued a series of four reports referring to the employment and status of women on farms. The first refers to Social and Labour Needs, the second to Domestic Needs, the third to Educational Needs, and the fourth to Economic Needs, all founded on reports and advices from every section of the country. The information conveyed is naturally very diversified. In many cases "A Man" gives his views of what a woman should do and have, and then the woman expresses her opinions. They are united in one thing, the need of betterment, principally in social and financial conditions.

*The Journal of the Board of Agriculture,* April, 1915. There is much of general interest in this publication issued monthly by the British Board of Agriculture and Fisheries. Possibly the articles of widest concern in the present number is one on "Dried Yeast as a Food for Farm Stock", another on "Danish Investigations showing how Tubercular Fowls affect Pigs", and a third giving the "Present Values of Feeding Stuffs." It is interesting to note that 15.6 per cent of the agricultural labourers of Britain have gone to the war.

*Cornell Rural School Leaflet.* This leaflet intended for boys and girls on the first of forty-eight pages with a finely coloured illustration of the Baltimore Oriole, says: "To learn to know all the birds about your country home by sight and by their songs will be an achievement. If you learn to whistle the notes of the birds that whistle, there will be an added interest in your study." The following hints on late vegetable gardening are worth noting: "It is quite possible that several of the vegetables will be through bearing about the first of July, and we can fill their places with late vegetables for winter. Begin at the southern side of the garden, look over the plan, and decide which vegetables may be replaced and with what we shall replace them. In actual practice our plan may not work out in all cases because of a backward season or for some other reason, but it is well to be prepared, and no ground should lie idle if we can help it. The parsley, the parsnips, the onions, and the carrots surely remain all season; and probably the early beets, the early turnips, and the spinach will not be out in time for anything else to be sown. Lettuce and radishes may be followed by late cabbage, which can be set even before all the lettuce has been used. The first planting of peas will be out in time for a second planting of snap beans, and the second planting of peas may be followed by late beets. The first planting of snap beans will probably be completely used, and the vines can be pulled in time for a sowing of late turnips. The early cabbage will be out of the way in time for a sowing of late lettuce, radishes and spinach, about the middle of August." A great deal of valuable information and counsel is given on the flower garden and the utilization of school grounds as well as relating to seed-testing and weeding.

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"We, that is the British Empire, had better make up our minds that in order to secure 'victory as usual,' we must strain every nerve, and that Nelson's watchword, 'England expects every man to do his duty,' means at present, not alone every man in the Navy and every man in the Army, but every man on the arable field and the pastoral grazing, every man engaged in growing food or manufacturing munitions of war, every man, every woman, and every boy and girl, who can do anything to keep the wheels of industry moving at their maximum speed."—*Scotland Yet, in The Farmers' Advocate.*



## NOTES

To the table of "Federal Appropriations for Agriculture", on page 414, of the May Gazette, the following should be added:

Experimental Farms— new buildings and im- provements, tobacco curing station, renewals and re- pairs, etc., in connection with the existent buildings, fences, etc.....	\$150,000
Experiments with reindeer.....	1,000

The Grant to Dominion Exhibition should read \$250,000, instead of \$280,000.

Demonstrations in silo building and filling are being given in British Columbia by representatives of the provincial department of Agriculture.

In the Northwestern States, reports state, a shortage in apples compared with last year is expected. Strawberries do not promise well, but raspberries do. Stone fruits will likely be an average crop. Pears indicate an increase.

The total shipment of flax seed from Montreal to United Kingdom ports in 1913 was 6,149,327 bushels, of which Hull took 2,670,091 bushels. In 1914, owing to the short crop, the shipment amounted to only 176,694 bushels, of which Hull took 82,074 bushels.

According to the Weekly Bulletin of the Trade and Commerce Department for May 17th, up to the end of March, apples to the extent of 80,257 barrels had been shipped from Boston, 58,248 barrels from Halifax, 21,854 barrels from Montreal, 15,930 barrels from Portland, 4,553 barrels from St. John, N.B., and 3,835 barrels from New York.

The following companies relating to agriculture have recently been incorporated in Saskatchewan: Western Canada Stock Farms, Limited, Saskatoon, \$250,000; Woodland Farms, Limited, Moose Jaw, \$30,000; Prairie Farms, Limited, Moose Jaw, \$20,000; and the Farmers' Pork Packing Company, Limited, Estevan, \$50,000.

W. E. Scott, Deputy Minister of Agriculture for British Columbia, has announced that the Department is now prepared to furnish barn plans to any person in the province contemplating the erection of barns.

R. M. Winslow, secretary-treasurer of the British Columbia Fruit-Growers' Association, has issued price lists of fruit packages and wrapping paper and of spraying and fertilizer supplies for members of the association.

The Department of Agriculture of Saskatchewan is making arrangements for short courses for teachers during July and August at the College of Agriculture, Saskatoon, and at the Normal School, Regina. At the college, courses in nature study, school gardening and elementary agriculture will be given and at the Normal School a course in household science.

In the Weekly Bulletin of the Trade and Commerce Department, May 17th, 1915, the Acting Trade Commissioner at Leeds, Mr. Claude Dyer, directs attention to the fact that Belgium and Russia shipped undressed flax to the United Kingdom amounting in value to twenty million dollars. In Russia military demands will leave little for export while the supply from Belgium will be absolutely *nil*. The Imperial Board of Agriculture has issued a leaflet appealing to farmers to grow more flax for fibre. Mr. Dyer thinks that now is Canada's opportunity in this line.

A government report shows that the acreage under alfalfa in Alberta has increased from 2,592 in 1910 to 11,400 in 1914, and the yield has increased in the same period from approximately 5,000 tons to 32,000. The value of the 1914 alfalfa crop is given as \$11.41 per ton, a total of \$365,000, so that alfalfa is now realizing for Alberta farmers an average of \$1,000 every day in the year. The fact that Alberta now produces two-thirds of the alfalfa grown in the prairie provinces is undoubtedly due to the large irrigation areas in the southern part of the province, where alfalfa is grown with little difficulty and gives large net returns on the labour and investment.—*Country Life in Canada*, May, 1915.



The creameries in Alberta made over 5,250,000 lb. of butter in 1914, and the total value of dairy products produced in the province last year was \$10,500,000.

In an Alberta cow-testing campaign last year 166 cows were started and inside of eight months one-quarter of them were sent to the scrap heap as dairy animals. This shows what the test will do.

The University of Wisconsin, in fulfilment of a plan to make high schools local extension centres, has sent out to 230 communities, 100,000 feet of film and 15,000 slides.

The Tenth International Dry-Farming Congress will be held at Denver, Colorado, from October 4 to 7, this year, in connection with the International Soil Products Exposition, which will extend from September 27 to October 9.

The Durham County Branch of the Ontario Department of Agriculture announces six school fairs to be held during the present year. The competitions include the growing of potatoes, corn, mangels, barley and oats, sweet peas, the raising of poultry, and the making of nature collections.

The quantities of bacon, hams and pork exported from Canada during the fiscal year ended March 31, 1915, were as follows:

Bacon.....	76,801,419	pounds
Hams.....	17,958,874	"
Pork.....	21,288,226	"

Total.....116,048,519

The Live Stock Branch of the British Columbia Department of Agriculture has completed a series of summer meetings throughout the province to encourage the advancement of the live stock industry. The series began on May 21 and ended June 8th, the speakers were: S. H. Hopkins, Assistant Live Stock Commissioner; J. R. Terry and H. E. Upton, Provincial and Assistant Provincial Poultrymen, respectively; T. A. F. Wiancko and E. Jamieson. A number of Short Courses under the same supervision were also held during May and early June. The courses had sessions devoted to lectures and demonstrations on dairying, the latter and fodder crops forming the subjects of particular attention.

The Journal of Agriculture of South Australia notes the rise in price of frozen beef sent from that state to the Smithfield market, England, from 2½ d. per lb. in 1896 to 6½ d. in January of this year, and of Australian lamb from 3½ d. per lb., in 1897 to 6½ d. this year. In 1913, Australia shipped to Great Britain 1,084,832 quarters of beef and 4,442,517 carcasses of sheep. The Argentines sent across 4,021,531 quarters of beef.

Through the provincial Department of Agriculture the British Columbia Dairymen's Association announce a series of prize competitions. The first is for herds of over 20 cows, and the second for herds of 20 cows and under. A cup and medal are offered for the best record for fat by Ayrshires, Holsteins, Jerseys and Guernseys. Joint-record prizes are offered to principal fairs. Competitions are also encouraged for junior herds, for best pens of bacon hogs and of block hogs, and for creamery butter and milk and cream, as well as in cow-testing.

*The Journal of Agriculture* for New Zealand, published March 20th, 1915, contains the following among other articles: Wheat-Growing, by Dr. F. W. Hilgendorf of Lincoln College; Constructive Agriculture, by A. McTaggart, B.S.A., M.S.A.; Seeds and their Identification, by E. Bruce Levy; Dairying in Switzerland, with particular emphasis on Cheesemaking and City Milk-supply, by W. Wright, Inspector of New Zealand dairy produce in London, and Lucerne-Co-operative field trials in the North Island, by G. De S. Bayliss.

Mr. W. E. Scott, Deputy Minister of Agriculture for British Columbia, has announced certain expenditures in connection with assistance to flower shows given by women's institutes throughout the province. The assistance given may be summarized as follows:—

A per capita grant of 25 per cent in addition to the grant made under the authority of the Agricultural Associations Act 1914, will be given to institutes holding flower shows or an exhibition of women's work, or a combined flower show and such exhibition in their own district.

Prizes will be offered for competition at such shows for collections of bulbs, sweet-peas, roses, dahlias, and perennials, or other varieties as may be decided by the institute, the prizes to consist of books awarded by the Department, as follows:—Adults, 1st and 2nd prizes. Juveniles, three prizes.

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- A Summer School of Nature-Study and Elementary Agriculture,  
Dr. D. W. Hamilton, Head of Nature Study Department, *The Macdonald College Magazine*, Macdonald College, Que., April-May, 1915, page 270.
- Notes on the Short Course Poultry Class at Macdonald College,  
*Canadian Poultry Review*, Toronto, Ont., May, 1915, page 195.
- Popular and Economic Entomology. Some of the Benefits from Spraying with Arsenates in the Apple Orchards of Nova Scotia,  
Geo. E. Saunders, Field Officer, Entomological Branch, Dominion Department of Agriculture, *The Canadian Entomologist*, London, Ont., May, 1915, page 137.
- Canada's Opportunity in World's Food Supply,  
W. Miller Higgs, *B. C. Fruit & Farm*, Vancouver, May, 1915, page 594.
- Do You Know Your Weeds,  
Faith Fyles, B.A., Assistant Botanist, Department of Agriculture, Ottawa, *The Maritime Farmer*, Sussex, N.B., May 18th, 1915.
- Keeping Boys' Feet on the Soil. School Courses that Deal with Farming as an Applied Science—Gardens and Fields Provide Material for Lessons,  
J. McCaig, Edmonton, *Family Herald & Weekly Star*, Montreal, May 19th, 1915, page 1.
- The Romance of the Canadian Seed Growers' Association,  
Dr. Jas. Robertson, *Prairie Farm & Home*, Regina, May 19th, 1915, page 2.
- Experimental Live Stock Feeding Under Manitoba Conditions,  
E. Ward Jones, B.S.A., Professor of Animal Husbandry, M.A.C., *The Northwest Farmer*, Winnipeg, May 20th, 1915, page 453.
- A Sane View of Public School Agriculture, J. McCaig, Department of Education, Edmonton, *The Canadian Farm*, Toronto, May 21st, 1915, page 2.
- Canada's Part in Feeding the Warring Nations,  
*The Canadian Farm*, Toronto, May 21st, 1915, page 4.
- The Farmer and the Flax Industry,  
James A. Byrne, *The Canadian Farm*, Toronto, May 21st, 1915, page 5.
- What the Progress Clubs Stand For. Can Agriculture be Taught Successfully in Rural Schools?  
Justus Miller *The Canadian Countryman*, Toronto, May 22nd, 1915, page 7.
- Co-operation as it Affects the Farm Home,  
W. W. Thomson, *Prairie Farm & Home*, Regina, May 26th, 1915, page 2.
- Horse, Cattle, Sheep and Swine Experiments Conducted at M.A.C.,  
E. Ward Jones, *The Farmer's Advocate*, Winnipeg, May 26th, 1915, page 631.
- Value of Teaching Agriculture in Rural Schools,  
Ivan B. Thompson, Harrow, Ont., *The Canadian Farm*, Toronto, May 28th, 1915, page 2.
- The Canadian Flour Milling Industry. The present Status of the Industry,  
Oliver Master, M.A., *Canadian Miller & Cerealists*, Montreal, June, 1915, page 137.
- Crop Prospects in Canada,  
Ernest H. Godfrey, F.S.S., Census & Statistics Office, Ottawa, *The Canadian Miller & Cerealists*, Montreal, June, 1915, page 145.
- The Truth About the School Fair,  
Justus Miller, *The Canadian Countryman*, Toronto, June 5th, 1915, page 7.

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"The work of our School Garden Associations is being better understood. We are not making farmers. We are not interested in making gardeners. We are interested in making men. The influence of our work upon the child makes him a better man, a better citizen. That is the aim of our Association. The child that has not had an opportunity to come in daily touch with the myriad operations of Mother Earth is deprived of his own heritage."—Mr. Van Evrie Kilpatrick, founder of the School Garden movement.

## DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

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On the Central Experimental Farm and twenty Branch Farms and Stations distributed over Canada, conducts research and experiments in animal, field, orchard, garden and greenhouse husbandry, distributes superior seeds, analyzes and tests fertilizers and feeding stuffs, studies diseases of plants and administers ordinances for their control, and demonstrates what are of value.

### The Dairy and Cold Storage Branch..... Commissioner, J. A. Ruddick.

Encourages and assists in the development of the dairying industry and the improvement in the storage, transportation, sale and trade in agricultural products; administers the Dairy Industry Act (1914), the Cold Storage Act (1907), and the Cold Storage Warehouse Act (1914).

### The Seed Branch..... Commissioner, George H. Clark, B.S.A.

Encourages the production and use of superior seed, the production of farm and garden crops, tests seeds for farmers and seed merchants and administers the Seed Control Act.

### The Live Stock Branch..... Commissioner, John Bright.

Encourages and assists the development of the live stock industry.

### The Health of Animals Branch..... Veterinary Director General, Frederick Torrance, B.A., D.V.S.

Administers the Animals Contagious Diseases Act and the Meat and Canned Food Act. Protects Canadian live stock from contagious diseases.

### Entomological Branch... Dominion Entomologist, C. Gordon Hewitt, D.Sc.

Conducts investigations on insects in relation to agriculture, encourages the use of methods of prevention and control and administers the Insects and Pests Section of the Destructive Insect and Pest Act.

### The Fruit Branch..... Commissioner, Donald Johnson.

Encourages the development of the fruit industry along commercial lines. Also administers Part IX of the Inspection and Sale Act, relating to fruit and fruit packages.

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Supplies Institute at Rome statistics and official information respecting agriculture in Canada and distributes in Canada, in the Bulletin of Foreign Agricultural Intelligence, corresponding information from fifty-two adhering countries.

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